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ASSESSMENT OF KNOWLEDGE & AWARENESS TOWARDS PROSTATE CANCER SCREENING AMONG URBAN AND RURAL COMMUNITIES IN GHAZIABAD U.P.

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All the statistical calculations of this study are authentic and correct to the best of my knowledge.

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ABSTRACT

INTRODUCTION: The prostate gland is a vital component of the male reproductive system, producing seminal fluid that nourishes and protects sperm. Prostate health issues, including benign hyperplasia, prostatitis, and cancer, are common, particularly in older men. Prostate cancer, often asymptomatic in early stages, can significantly impact quality of life if not detected early. Awareness and screening through methods like PSA testing and DRE are crucial but remain underutilized, especially in rural areas.

AIM AND OBJECTIVE: The aim of this study is to assess the knowledge and awareness of prostate cancer screening among urban and rural communities in Ghaziabad, U.P.

Objectives : It determining the knowledge, attitudes, and practices related to prostate cancer screening and identifying demographic associations with these factors.

MATERIALS AND METHOD: This study assesses knowledge and awareness of prostate cancer screening among urban and rural communities in Ghaziabad, U.P. Using a cross-sectional design with 370 male participants aged 30 and above, data were collected through a questionnaire covering demographic information and prostate cancer awareness. The study aims to identify gaps in knowledge and screening practices to improve early detection and reduce prostate cancer mortality.

RESULT : The study engaged 370 participants, nearly evenly split between rural (51.6%) and urban (48.4%) areas. A majority (67%) believed prostate cancer is curable, and 58.4% felt early diagnosis improves outcomes. However, awareness about symptoms, heredity, and the nature of the disease varied, indicating a need for further education on prostate cancer.

CONCLUSION : this study underscores significant gaps in awareness and understanding of prostate cancer among participants from diverse backgrounds. While optimism exists regarding its curability and the benefits of early screening, misconceptions and anxiety about the disease persist. Enhanced public education and targeted outreach, particularly in rural areas, are essential to promote informed decision-making and improve early detection efforts.

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Chapter-1

INTRODUCTION

1.1 GROSS ANATOMY

The prostate gland is situated in the true pelvis and plays a supportive role in the male reproductive system. Its principal purpose is to secrete alkaline solution protective for sperm in the acidic environment of the vagina. The fluid acts to balance the acidity of the vagina, which increases the overall lifespan of the sperm, allowing the greatest length of time to fertilize an egg successfully.

The prostate is commonly described as being the size of a walnut. Roughly two-thirds of the prostate is glandular in structure and the remaining third is fibromuscular. The gland itself is surrounded by a thin fibrous capsule of the prostate. This is not a real capsule; it rather resembles the thin connective tissue known as *adventitia* in the large blood vessels.

Traditionally, the prostate is divided into anatomical lobes (infer posterior, inferolateral, superomedial, and anteromedial) by the urethra and the ejaculatory ducts as they pass through the organ. However, more important clinically is the histological division of the prostate into three zones (according to McNeal)

Central zone surrounds the ejaculatory ducts, comprising approximately 25% of normal prostate volume.

The ducts of the glands from the central zone are obliquely emptying in the prostatic urethra, thus being rather immune to urine reflux.

Transitional zone – located centrally and surrounds the urethra, comprising approximately 5-10% of normal prostate volume.

The glands of the transitional zone are those that typically undergo benign hyperplasia (BPH)

Peripheral zone – makes up the main body of the gland (approximately 65%) and is located posteriorly.

The ducts of the glands from the peripheral zone are vertically emptying in the prostatic urethra; that may explain the tendency of these glands to permit urine reflux.

That also explains the high incidence of acute and chronic inflammation found in these compartments, a fact that may be linked to the high incidence of prostate carcinoma at the peripheral zone.

The peripheral zone is mainly the area felt against the rectum on DRE, which is of irreplaceable value.

The fibromuscular stroma (or fourth zone for some) is situated anteriorly in the gland. It merges with the tissue of the urogenital diaphragm. This part of the gland is actually the result of interaction of the prostate gland budding around the urethra during prostate embryogenesis and the common horseshoe-like muscle precursor of the smooth and striated muscle that will eventually form the internal and external urethra sphincter.

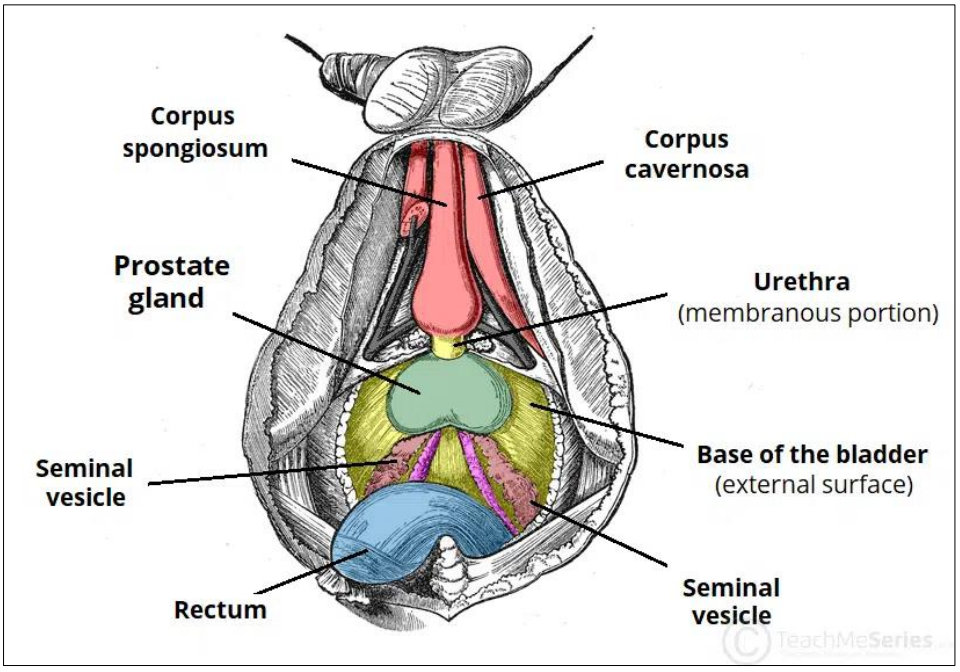

Fig 1: Inferior view of the structures in the male reproductive system.

1.2 Prostate Gland

Prostate gland is an organ in reproductive anatomy. It sits directly below the bladder and plays a role in producing semen. Some urinary problems may result from changes in the prostate gland.

The prostate is a small, walnut-shaped gland in the male reproductive system that produces seminal fluid, which nourishes and transports sperm

Prostate problems are common, especially in older men. The most common include an inflamed prostate, an enlarged prostate, and prostate cancer.

Symptoms of prostate trouble often appear as difficulty urinating, which might include poor bladder control or weak urine flow.

The prostate has various functions. The most important is producing seminal fluid, which is a component of semen. It also plays a role in hormone production and helps regulate urine flow

The proteolytic enzymes into the semen, which act to break down clotting factors in the ejaculate. This allows the semen to remain in a fluid state, moving throughout the female reproductive tract for potential fertilization.

The prostate fluid contains enzymes, zinc and citric acid, which help nourish sperm cells and lubricate your urethra. The urethra is a tube through which ejaculate and pee flow out of your body.

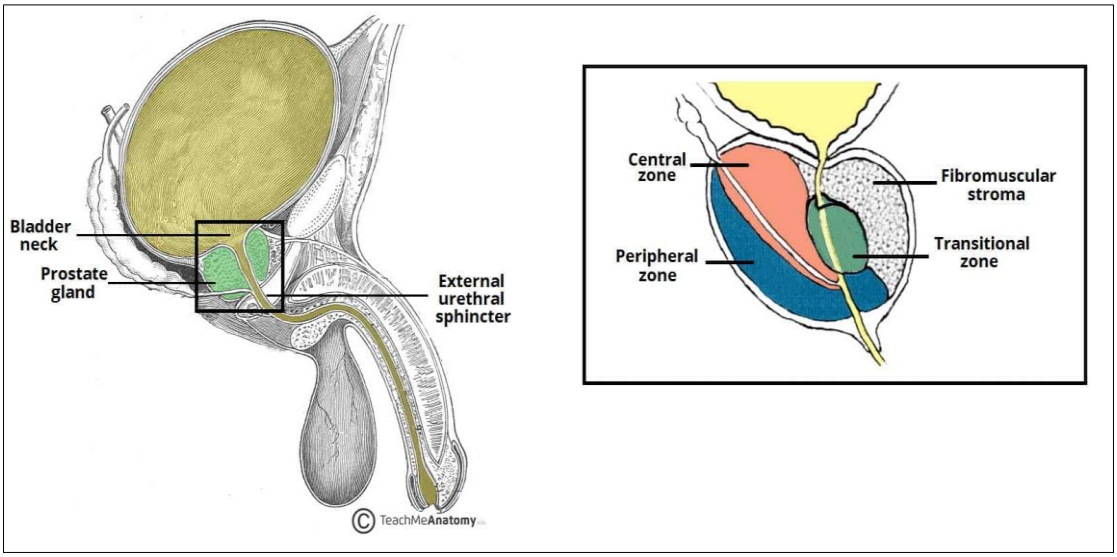

Fig 2: The anatomical position and zones of the prostate.

1.3 Structure and Function of Prostate Gland

The prostate is a dense fibromuscular gland. And the shape is like an inverted cone having a base above surrounding the neck of the urinary bladder, apex below situated on the external urethral sphincter. The location of prostate gland is the prostate lies directly inferior to the bladder and wraps around the proximal urethra. A fibrous capsule encloses the gland, with the nerves and vascular plexus which is further surrounded by a visceral layer of pelvic fascia.

Anteriorly, the prostate posterior to the pubic symphysis, separated by a pad of fat (retropubic fat) and venous plexus (prostatic venous plexus)

Posteriorly the prostate in a close relationship to the rectum and is separated by fascia of Denon Villiers

The external urethral sphincter muscle is beneath the prostate where it wraps around the urethra help to control ejaculatory and urinary flow

On the lateral aspects, the gland is related to the lavatory ani muscle of the pelvic floor covered by endopelvic fascia

The prostate gland divides an anatomically into five lobes: anterior and posterior lobes, two lateral lobes, and one median lobe. This description is in many anatomical textbooks. In clinics, it is described as having two lateral lobes right and left and a median lobe.

The prostate gland is composed of histologically different zones; based on these, the gland divides into three anatomical zones.

The central zone forms the base of the gland that surrounds the ejaculatory ducts

The peripheral zone is the largest zone making up 70% of the gland and surrounds most of the central zone and partially surrounds the distal part of the prostatic urethra

The transition zone is a small glandular zone that surrounds a portion of the urethra between the urinary bladder and verumontanum

There is an area denoted as the anterior fibromuscular stroma within the prostate; this area is not glandular, and contains mostly muscular and fibrous tissue and surrounds an inferior portion of the prostate called the apex

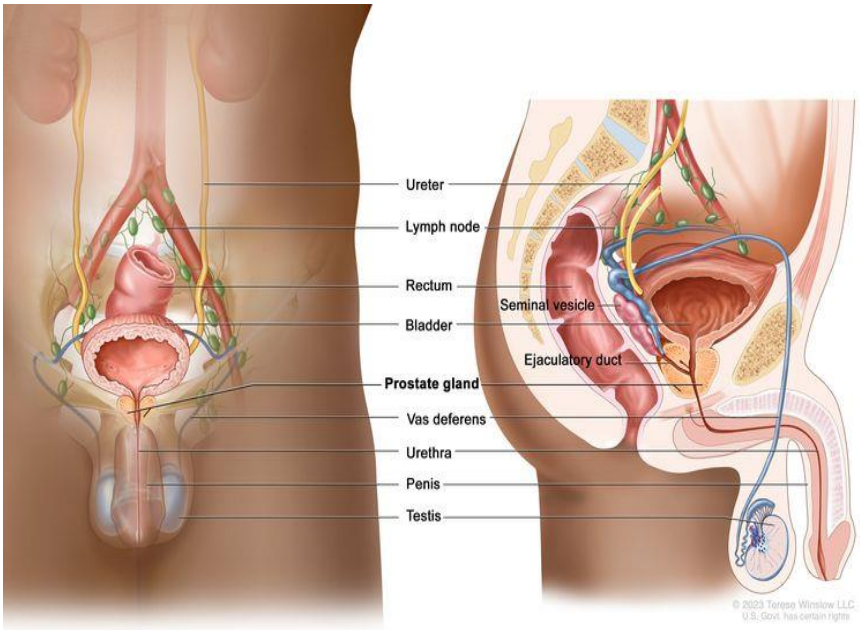

Fig 3: The male reproductive and urinary systems showing the ureters, bladder, prostate gland, urethra, penis, testicles, and other organs.

Importantly, the prostate gland has multiple tubular structures passing within it, including the proximal urethra and two ejaculatory ducts. The ejaculatory ducts enter the prostate immediately as it emerges from the seminal vesicles. Both of these ducts travel from posterior and lateral to medial and inferior. They ultimately converge at the urethra within the prostate gland on an area called the seminal colliculus.

1.4 Screening of Prostate Cancer

Prostate cancer screening aims to detect cancer before any symptoms appear, potentially identifying it at an early stage when treatment may be more effective. Early detection of abnormal tissue or cancer can simplify treatment, but once symptoms develop, the disease may have already spread. Screening tests, like the PSA test or digital rectal exams, are conducted in the absence of symptoms and may be done regularly, though these tests have not been shown to reduce prostate cancer deaths. The effectiveness of screening remains controversial, as large-scale trials, such as the Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial, have not confirmed that early detection improves health outcomes. While early-stage prostate cancer may be easier to treat and cure, the decision to screen comes with risks. Some prostate cancers grow slowly and never spread, meaning treatment might not always be necessary. Additionally, treatment can cause side effects like urinary incontinence, erectile dysfunction, and bowel issues. For some men, knowing whether they have cancer provides peace of mind, but for others, the anxiety and complex decision-making around a non-life-threatening diagnosis can be overwhelming. Though prostate cancer screening has contributed to a decline in deaths, the reduction may not justify the cost or potential harm associated with the testing.

The prostate is a tiny, 20g auxiliary fibromuscular gland of the male reproductive system. It is situated anteriorly to the rectum, inferior to the bladder, superior to the perineal membrane, and posterior to the pubic symphysis. Proteolytic enzymes are produced and secreted into semen to aid in fertilisation. The symptoms of prostate cancer can be both psychological and physical. Prostate cancer in its early stages typically has no symptoms.

1.5Advanced prostate cancer symptoms

The manifestation of advanced prostate cancer includes symptoms such as unintentional weight loss, persistent need for urination, hematuria or hemispheric, and pain localized to the lower back, hips, or pelvic region. Key risk factors for developing prostate cancer encompass age, geographical prevalence, racial and ethnic background, familial predisposition, and genetic mutations, including those associated with Lynch syndrome. Additional, though less

definitive, risk factors include dietary habits, obesity, tobacco use, chronic prostatitis, sexually transmitted infections, and vasectomy. Moreover, individuals assigned male at birth but identifying as non-binary, as well as transgender women, remain susceptible to prostate cancer

1.6: Prostate-Specific Antigen (PSA).

Prostate-Specific Antigen (PSA) testing quantifies PSA protein levels in the bloodstream, serving as an early marker of prostate malignancy. However, conditions like benign prostatic hyperplasia (BPH) and prostatitis can also elevate PSA levels. Notably, false-positive results are possible, where PSA elevation occurs in the absence of cancer. Definitive diagnosis in individuals with elevated PSA levels is best achieved through transrectal ultrasound-guided needle biopsy of prostate nodules or lesions. While PSA screening remains a diagnostic tool, it carries psychological risks due to the anxiety and distress induced by frequent false-positive results.

In conjunction with digital rectal examinations (DREs), magnetic resonance imaging (MRIs), and computed tomography (CT) scans, the detection of prostate cancer can be facilitated by additional diagnostic modalities. The potential for prostate cancer to proliferate and metastasize is stratified by the pre-biopsy PSA levels and histopathological grading of the tumor, a process commonly referred to as assessing the risk of progression. This risk stratification is integral in formulating appropriate therapeutic strategies and management protocols. Although prostate cancer incidence in India is not exceedingly high in comparison to other malignancies, mortality rates remain disproportionately elevated. This increase in mortality, particularly in developing nations, can be attributed to a pervasive lack of awareness, education, and access to effective screening methodologies for prostate cancer.

To mitigate the rising mortality rates, it is paramount to intensify public health campaigns focused on enhancing prostate cancer awareness, promoting the use of screening tools, and elucidating the benefits of early detection—particularly among high-risk demographics. Earlier diagnosis facilitates more favorable treatment outcomes and could significantly reduce mortality rates. The primary aim of this review is to investigate the knowledge, awareness, and practices of adult men concerning prostate cancer.

The Victorian Cancer Registry (VCR) conducted an inquiry into prostate cancer diagnoses within a Regional Integrated Cancer Service (RICS) in Ghaziabad, India. To elucidate the observed disparities between this regional service and other Victorian regions, data from the VCR and the Prostate Cancer Outcome Registry-Victoria (PCOR-Vic) were analyzed. The study explored clinical, sociodemographic, and quality-of-life variances between prostate cancer patients in the RICS and those from metropolitan areas.

The findings revealed that men in the RICS were more frequently diagnosed at advanced stages of prostate cancer, with correspondingly poorer outcomes when compared to metropolitan counterparts. Qualitative analyses further identified challenges unique to regional living, such as restricted access to healthcare services, including general practitioners (GPs) and specialists, limited awareness of prostate cancer, and cultural reluctance among men in rural areas to consult GPs, particularly regarding sensitive health issues necessitating DREs.

These regional disparities in health outcomes are not exclusive to India, as similar discrepancies have been observed in other global regions, a topic previously discussed. GPs emphasized the need for more consistent screening guidelines, highlighting a discordance between the Royal Australian College of General Practitioners (RACGP), which discourages routine screening unless requested by the patient, and the National Health and Medical Research Council's (NHMRC) recommendations advocating screening for men at average to high risk.

This research sought to extend the insights garnered from prostate cancer studies in Victoria to other locales, including Ghaziabad, where significant portions of the population reside in rural and remote regions. The objective was to glean perspectives from men undiagnosed with prostate cancer, with an emphasis on how geographic residence influences health outcomes. While group comparisons were not the focus, the reflections of individual men were analyzed to provide evidence that could enhance prostate cancer care and overall men’s health outcomes.

The American Urological Association, the American Cancer Society, and the International Society for the Study of the Aging Male (ISSAM) advocate for PSA screening in well-informed individuals, with baseline testing recommended at age 40, complemented by a DRE. A recent randomized, prospective study demonstrated high compliance (89%) with both PSA and DRE screening protocols. Furthermore, positivity rates for these tests and subsequent prostate cancer diagnoses escalated with advancing age, as did detection rates

correlating with elevated PSA levels and abnormal DRE findings. The study supported the efficacy of annual PSA and DRE screening as diagnostic tools.

However, misconceptions about the causes of prostate cancer and fears regarding the potential disfigurement or harm from treatment often deter individuals from seeking early diagnostic testing. The psychological weight of a cancer diagnosis, with its implication of mortality, can lead to heightened anxiety, distorting communication between patients and healthcare providers, and complicating the patient's ability to comprehend medical recommendations—ultimately jeopardizing the doctor-patient relationship.

Nonetheless, it remains essential to acknowledge that early detection can lead to the successful treatment of various cancers, contingent on the cancer's stage and the organs involved.

Chapter -2

AIM AND OBJECTIVES

Aim

Assessment of knowledge & awareness towards prostate cancer screening among urban and rural communities in Ghaziabad (U.P.)

Objectives –

1. To determine the knowledge, practice and attitude towards prostate cancer screening.
2. To determine the association between demographics of participants and knowledge, knowledge of participants and attitude towards prostate cancer screening.

Chapter-3

REVIEW OF LITERATURE

1**. Ruth Gathoni Mbugua1, Sherry Oluchina and Simon Karanja,et.al**,"Prostate cancer awareness and screening among men in a rural community in Kenya; Prostate cancer is the second most commonly diagnosed cancer in men worldwide, with the highest mortality rates observed in Asia and Africa. Screening rates are notably low among men in developing countries, resulting in many cases being diagnosed at advanced stages. This study aimed to evaluate the awareness of prostate cancer and screening practices among men aged 40 to 69 in a rural community in Kenya.

2.**Agbugui jo, Obarisiagboneo, Nwajei co, Osaigbovoeo, Okolojc, Akinyeleao,.et.al.**"Awareness and knowledge of prostate cancer Among Benin city, Nigeria; Men Prostate cancer is a significant cause of illness and death among older men. This study aimed to evaluate the knowledge of prostate cancer among men in Benin City, Nigeria, involving 402 men over the age of 40. A structured questionnaire was used to gather information on their understanding of prostate cancer. The average age of participants was 51±8.2 years, with a majority (74.6%) having received tertiary education. Awareness of prostate cancer was reported by 288 men (71.6%), while only 120 men (29.9%) recognized that lower urinary tract symptoms can be associated with the disease. Additionally, 174 men (43.3%) identified age as a risk factor, and although 90 respondents (22%) knew about prostate-specific antigen (PSA), only 18 men (4.5%) had undergone PSA screening. Awareness of prostate cancer and PSA screening was significantly higher among those with tertiary education ($P < 0.0001$). Overall, the mean knowledge score regarding risk factors, symptoms, and treatment of prostate cancer was only 3.4±1.2 out of 10. There is a clear lack of in-depth understanding of the disease, highlighting the need for further health education.

3.**Valeria Panebianco, Martina Pecoraro, Giulia Fiscon, Paola Paci, Lorenzo Farina and Carlo Catalano.et.al**."Prostate cancer screening research can benefit from network medicine: an emerging awareness; Screening for prostate cancer remains a highly appealing yet controversial topic within the urological community. As the second most common cancer in men globally, Prostate cancer is widely recognized as a complex disease with multiple contributing factors. In recent years, the approach to diagnosing Prostate cancer has shifted

significantly, with multiparametric magnetic resonance imaging (mpMRI) taking a central role through the introduction of the "MRI Pathway." In this context, the core concept of network medicine (NM), which views disease as a disruption of interconnected molecular networks, aligns well with the challenges of early Prostate cancer detection and the need for more reliable screening techniques. To improve this process, it is essential to integrate tests from body fluids, tissue samples, classification systems for grading and staging, physiological data, MRI imaging, and molecular profiling within a broader understanding of disease complexity, focusing on early indicators. NM's perspective can greatly enhance Prostate cancer screening research by offering a strong framework for interpreting diverse data and promoting collaboration between clinicians and data analysts to explore new, rational, and reliable research pathways.

4.**Pilar Carrasco-Garrido, Valentın Hernandez-Barrera, Ana Lopez de Andres, Isabel Jimenez-Trujillo, Carmen Gallardo Pino, Rodrigo Jimenez-Garcıa. Et.al**."Awareness and uptake of colorectal, breast, cervical and prostate cancer screening tests in Spain; The levels of awareness and uptake of colorectal, breast, cervical, and prostate cancer screening tests, and to examine how these are associated with socio-demographic and health-related factors. A population-based cross-sectional study was conducted using a home-based personal interview survey on a nationally representative sample (n=7938) of individuals aged 18 and above. Awareness was measured by asking participants, "I will now mention several medical tests for cancer detection. Please tell me if you are familiar with them or if this is your first time hearing about them The tests included were the faucal occult blood test (FOBT), mammography, Pap smear, and prostate-specific antigen (PSA). Cancer screening uptake was evaluated by asking participants if they had undergone any of these tests in the last two years. Awareness rates were 38.55% for FOBT, 95.03% for mammography, 70.84% for Pap smears, and 54.72% for PSA. The uptake rates were 74.46% for mammography, 65.57% for Pap smears, 35.19% for PSA, and 9.40% for FOBT. Factors such as immigrant status, lower education or income levels, and not having chronic conditions negatively affected screening uptake. Awareness and uptake were satisfactory for mammography, moderate for Pap smears, and critically low for FOBT. Disparities in cancer screening uptake were evident. Public health educational programs, particularly targeting vulnerable populations, are essential to increase awareness and encourage regular use of screening services. Our findings also suggest that, despite not being recommended, PSA testing is commonly used in Spain as an opportunistic screening tool.

5.**Mostafa A Arafa, Danny M Rabah, Iman H Wahdan:Awareness of General Public Towards Cancer Prostate and Screening Practice in Arabic Communities.et.al**."AComparative Multi-Center Study; This study aimed to examine the knowledge and beliefs of men aged 40 and above regarding prostate cancer screening and early detection across three Arab countries: Saudi Arabia, Egypt, and Jordan. The fieldwork took place between February and December 2011, with the target population being men over 40 years old. It was a population-based, cross-sectional study with 400 participants from each country. Data collected included socio-demographic information, medical history, prostate cancer screening practices, and family history of prostate cancer. Participants were also asked about their knowledge and attitudes towards prostate cancer screening using two Likert scales. The percentage of men who regularly underwent prostate check-ups ranged from 8% to 30%. Overall, participants had limited knowledge and a moderate attitude towards prostate cancer screening, with mean knowledge scores of 10.25±2.5, 10.76±3.39, and 11.24±3.39, and mean attitude scores of 18.3±4.08, 20.68±6.4, and 17.96±5.3 for Saudi Arabia, Egypt, and Jordan, respectively. Physicians were the main source of information (62.4%), but they were not the primary motivators for regular check-ups. Knowledge was the only significant factor influencing participants' attitudes in the multiple regression models. Attitudes were primarily shaped by the level of knowledge and the amount of information given to patients and their families. To improve prostate cancer screening practices, attitudes should be supported by comprehensive information and motivation from physicians.

6**. Matthew O. Benedict, Wilhelm J. Steinberg, Frederik M. Claassen, Nathaniel Mofolo.et.al**. "Enhancing public awareness and practice of prostate cancer screening among African men: A scoping review; The incidence of prostate cancer is rising, with black South African men disproportionately presenting with aggressive forms of the disease. Recent studies indicate a greater net benefit of prostate-specific antigen screening for black men compared to the general population. This scoping review aims to summarize existing research on strategies that have successfully increased Prostate cancer screening awareness and practices in Africa. A search of relevant databases was conducted to identify studies from 2010 to 2021. Following scoping review protocols, data were extracted, summarized, and quantitatively analyzed. Out of the 21 studies included, 19 were conducted in the United States, with nine published within the past five years and 14 using pre-test/post-test designs. Most studies assessed the impact of health-promotion strategies on Prostate cancer screening awareness and behavior among black men. Community-based strategies were effective in increasing awareness and screening participation, involving healthcare providers, community

members, and Prostate cancer survivors in the planning and implementation process. These initiatives addressed topics that improved knowledge about Prostate cancer and dispelled cultural misconceptions, with a focus on engaging public spaces relevant to black men. The health education methods were diverse, comprehensive, user-friendly, and culturally appropriate. There is a need for more research on strategies to improve Prostate cancer screening awareness and practices among African men, as existing studies are limited. Successful strategies are community-focused and incorporate culturally sensitive health education topics, methods, presenters, and venues. These approaches could be adapted for use in the South African context. This study offers recommendations for improving Prostate cancer screening awareness and practices among African men.

7.**Nnodimele O. Atulomah, Motunrayo F. Olanrewaju, Ademola M. Amosu and Omotoyosi Adedeji.et.al.**"Level of Awareness, perception and screening Behavior Regarding prostate cancer Among Men in a Rural community of Ikenne Local Government Area, Nigeria; The aim of the study was to assess the level of awareness, specific knowledge, perceptions, and screening behaviors regarding prostate cancer among men in a rural community within the Ikenne local government area of southwestern Nigeria. This cross-sectional study used a pre-tested 36-item questionnaire (Cronbach's alpha = 0.62) to gather information about prostate cancer knowledge, perceived susceptibility and seriousness, perceived benefits of screening, and screening behaviors. A total of 398 participants were selected through systematic random sampling. The average age of participants was 44.24 years (SEM = 0.47). Knowledge of prostate cancer, measured on a 12-point scale, had a mean score of 4.97 (SEM = 0.15), while perception of prostate cancer, covering susceptibility, seriousness, and benefits on a 30-point scale, had a mean score of 17.65 (SEM = 0.18). Screening behavior, evaluated on an 11-point scale, yielded a mean score of 2.40 (SEM = 0.071). Additionally, 156 participants (39.2%) had heard of prostate cancer, whereas 377 (94.7%) were aware of breast cancer as a disease affecting women. The results indicate low awareness of prostate cancer among men in this community, with perception levels slightly above average, and very low screening behavior. Furthermore, perception variables were positively and significantly associated with screening behavior. The study concludes that to encourage regular screening among men, there is a need for a strong health promotion campaign aimed at increasing awareness and addressing misconceptions about prostate cancer in the community.

8.**JM Fitzpatrick, RS Kirby, CL Brough and AL Saggerson.et.al**"Awareness of prostate cancer among patients and the general public: results of an international survey; The goal of

this study was to evaluate the level of prostate cancer awareness among the general public and prostate cancer patients in Europe and North America. A survey was conducted in late 2007 across four European countries (UK, Germany, Italy, and Spain) and the United States and Canada. A total of 1008 men with prostate cancer and their partners (referred to as the 'prostate sample'), as well as 911 men without prostate cancer and their partners (the 'well sample'), all aged 50 and above, took part in the survey. Interviews were conducted via telephone, pen and paper, and online.The findings showed that 53% of respondents believed breast cancer to be more common than prostate cancer, and 10% of the well sample mistakenly thought that prostate cancer affects both men and women. Among the prostate sample, 50% considered themselves or their partners to be at low or very low risk for prostate cancer before diagnosis. While knowledge of major risk factors, such as age and family history, was relatively strong, there was less understanding of other potential factors like smoking and alcohol use. This large international survey revealed that, although awareness of prostate cancer among patients and the public is generally adequate, significant confusion remains about the risk factors, and many people tend to underestimate their own or their partner's risk. The study emphasizes the need for educational programs to inform men and their partners about prostate cancer risk factors, prevalence, and screening options.

9. **AshwiniKannan, MaggieKirkman, RasaRuseckaite, SueM.Evans.et.al**."Prostate cancer awareness, case-finding, and early diagnosis: Interviews with undiagnosed men in Australia; Previous research in Victoria, Australia, revealed differences in prostate cancer outcomes between regional and metropolitan areas. This study focused on undiagnosed men in both regional and metropolitan areas of South Australia to understand their views on prostate cancer. The aim was to explore why men in non-metropolitan regions often experience poorer outcomes compared to those in cities and to contribute to evidence that could improve prostate cancer care. Semi-structured interviews were conducted with 15 undiagnosed men (10 from metropolitan areas and 5 from regional areas), recruited through flyers distributed in medical and community settings. The interviews were recorded, transcribed, and analyzed for themes. Five main themes emerged, four of which were prompted by the interview questions: addressing prostate health, experiences and expectations of general practitioners (GPs), differences in healthcare between regional and metropolitan areas, and achieving early diagnosis. The fifth theme, Australian masculinity, arose naturally during discussions. Participants identified issues such as limited access to GPs in regional areas, inconsistency in prostate cancer detection methods, and men's reluctance to seek medical help. The study suggests that community-level strategies are appreciated for encouraging men to focus on

prostate health, and highlights the importance of expanding a systematic approach to prostate care to improve outcomes for men across Australia.

10. **Adithya G Rao, WinnieciaDkhar, Sharath S, RajagopalKadavigere, Abhimanyu Pradhan.et.al**"Knowledge, Awareness and Practice towards Screening for Prostate Cancer: A Systematic Review and Meta-Analysis; Prostate cancer is one of the most common cancers among men globally and a major contributor to illness and death, particularly in developing countries, largely due to a lack of knowledge and awareness about prostate cancer screening. This review and meta-analysis aimed to assess the knowledge, awareness, and practices of adult men regarding prostate cancer. A comprehensive literature search was conducted on studies published between January 2000 and 2021, initially identifying 137 studies, with 7 included in this meta-analysis. The pooled estimates for knowledge and awareness about prostate cancer were 65% [CI: 29%, 100%] and 74% [CI: 66%, 82%], respectively. However, screening practices were found to be limited. To improve awareness and increase prostate cancer screening rates, enhanced health education is strongly recommended.

11. **Juliana Gyasi Necku, Emmanuel AnongebaAnaba and Aaron Asibi Abuosi.et.al.**"Prostate cancer awareness and attitude toward early detection among male soldiers in Ghana: a cross-sectional study; Prostate cancer is the leading cause of cancer-related deaths among men in Ghana, posing a significant public health risk, particularly within the predominantly male Ghana Armed Forces (GAF). This study aimed to evaluate the awareness, knowledge, and attitudes of male soldiers regarding early detection of prostate cancer. Results indicated that 58.3% of soldiers had low awareness of prostate cancer, and 76.0% had limited or neutral knowledge about its risk factors and symptoms. While the soldiers generally had positive attitudes toward early detection, their intentions to undergo testing were low. Awareness was significantly linked to education level, military rank, having received information from a health worker, and knowledge of prostate cancer symptoms. It is recommended that GAF leadership collaborate with the Ministry of Health to raise awareness, educate soldiers about prostate cancer, and potentially organize regular screening activities to promote early detection and better disease management. These findings offer critical insights for health interventions in Ghana.

12**. Rogers A. Enemugwem, Beatrice A. Eze, UkamakaEjike, Eme O. Asuquo and Alafaka Tobin.et.al**."Prostate cancer screening: assessment of knowledge and willingness to screen among men in ObioAkpor LGA, Rivers State, Nigeria; Prostate cancer is the second leading cause of cancer-related deaths worldwide and the most commonly diagnosed cancer

among Nigerian men. Early detection through screening can reduce the morbidity and mortality associated with the disease. This study aimed to evaluate the knowledge and intention to undergo prostate cancer screening among men aged 40 to 75 in ObioAkpor Local Government Area, Rivers State, Nigeria. The primary sources of information about prostate cancer screening were the news media (35%) and healthcare workers (30.1%). Only 14.9% of respondents had good knowledge of prostate cancer, while 39.6% had good understanding of screening methods. Furthermore, just 23.3% were able to accurately identify prostate cancer screening techniques. Regarding the intention to screen, 51.5% of participants expressed willingness to undergo screening. In conclusion, the study revealed poor knowledge of prostate cancer, with only half of the respondents indicating an intention to be screened. This underscores the need for the Rivers State Ministry of Health to launch awareness campaigns highlighting the importance of prostate cancer screening.

13**. Kaninjing Ernest, Rahman Saleh,Close Fran, Pierre Rodrigue, Dutton Matthew, LamangoNazarius and Onokpise Oghenekome.et.al.**"Prostate cancer screening knowledge, attitudes, and beliefs among men in Bamenda, Cameroon; This cross-sectional study aimed to evaluate knowledge about prostate cancer, assess screening rates, and identify factors influencing screening in Bamenda. Questionnaires were distributed to a randomly selected sample of 556 men. Logistic regression was used to analyze the factors affecting screening rates. Results showed that 55.2% of participants had a moderate understanding of prostate cancer risk factors, while the screening rate was only 8.1%. The adjusted odds ratio (OR) for prostate cancer screening was 4.4 [1.1 - 17.6] for men aged 65 and older compared to those aged 40 to 44. Men earning more than 150,000 Francs had an adjusted OR of 6.4 [1.9 – 20.9] relative to those earning less than 50,000 Francs. Additionally, men who were aware of screening tests had an adjusted OR of 14.8 [6.6 – 33.4] compared to those unaware. The study found that age, income, and awareness were key factors influencing prostate cancer screening in Bamenda, where screening rates were low and knowledge was average.

14**. GerdGigerenzer, Jutta Mata, Ronald Frank.et.al.**"Public Knowledge of Benefits of Breast and Prostate Cancer Screening in Europe; Informed decision-making regarding breast and prostate cancer screening requires knowledge of its benefits. However, country-specific data on public understanding of these benefits is limited. A survey was conducted through face-to-face computer-assisted interviews with 10,228 individuals from nine European countries (Austria, France, Germany, Italy, the Netherlands, Poland, Russia, Spain, and the UK). The goal was to assess perceptions of the mortality reduction linked to mammography and PSA screening. Participants also reported how often they consulted 14 different health

information sources. Correlation coefficients were calculated to examine the relationship between the use of specific sources and the accuracy of screening benefit estimates. The findings revealed that 92% of women greatly overestimated the mortality reduction from mammography or were unsure, while 89% of men did the same for PSA screening. Those in the 50-69 age group, who are targeted by screening programs, were not significantly more informed than the general population. Consulting physicians ($r = .07$) and health pamphlets ($r = .06$) slightly increased rather than reduced overestimation. Overall, most people in the surveyed countries significantly overestimate the benefits of mammography and PSA screening, and health information sources, including physicians, have minimal impact on correcting these misconceptions.

15**. Johnny Boustany, Maher Abdessater, Halim Akl, Anthony Kanbar, Joey El Khoury, Serge Assaf1, Charbel Dabal, Charbel El Hachem, Antoine Kassis, Rodrigue Saad, Rami Halabi and Raghid El Khoury.et.al.**"Prostate Cancer awareness in the Lebanese population: a cross sectional national survey; Prostate cancer is the second most prevalent cancer among men in Lebanon, and screening is an effective way to lower mortality rates. This study evaluated the knowledge, awareness, and screening behaviors of the Lebanese population regarding prostate cancer. A cross-sectional national survey was conducted across all Lebanese governorates, involving 1,558 participants. Data on prostate cancer knowledge and attitudes toward screening were gathered through a semi-structured questionnaire. Bivariate and binary logistic regression analyses were used to examine the relationships between prostate cancer knowledge and socio-demographic factors.

The sample included 1,088 males (69.8%) and 470 females (30.2%), with an average age of 40. Significant differences ($p < 0.05$) were observed in prostate cancer knowledge concerning early detection methods, frequency, ideal screening age, symptoms, and curability, based on educational level (with university-educated individuals providing the most accurate responses), monthly income (higher income associated with more correct answers), and age groups (younger participants giving more correct answers). The study highlights the need for prostate cancer prevention and education programs, especially targeting older men and individuals with lower socioeconomic and educational backgrounds in Lebanon, to raise awareness and promote early detection, reducing the burden of advanced-stage prostate cancer.

16**. Ahmed F. Jarb, Amjad Kh. Aljuaid, Shauge M. Alghamdi, Ali A. Almathami, Abdulaziz A. Altawili, Anwar Alesawi.et.al**."Awareness about prostate cancer and its screening in Medina, Jeddah, and Makkah, Saudi Arabia population" Prostate cancer is a significant global public health concern, ranking as the second most common cancer worldwide, with 1.3 million new cases reported in 2018. Its incidence is higher in developed countries compared to developing ones. Given the limited research on prostate cancer in Saudi Arabia, this study aims to assess the awareness of prostate cancer and knowledge of screening practices among men in Medina, Jeddah, and Makkah, Saudi Arabia. A cross-sectional study was conducted from July 2nd to 10th, 2020, involving 1,212 male participants from these cities. Data were collected through an online validated questionnaire, and all analyses were performed using SPSS software, with the Chi-square test applied for bivariate analysis. A significance level of $P < 0.05$ was used.The mean age of participants was 36 years (±12.77). The results showed that 77% had heard of prostate cancer, and 52.5% were aware of prostate cancer screening tests. However, only 10.6% had good knowledge, 41.9% had fair knowledge, and 47.5% had poor knowledge. Just 3.9% had undergone the prostate-specific antigen test.The study concluded that knowledge about prostate cancer is low, highlighting the need for increased community and individual efforts to raise awareness through campaigns, media, and encouraging men to undergo screenings. Future studies should include more cities in Saudi Arabia for more comprehensive results.

17**. Sakala Gift, Kasongo Nancy and Mwanakasale Victor.et.al**."Assessment of knowledge, practice and attitude towards prostate cancer screening among male patients aged 40 years and above at Kitwe Teaching Hospital, Zambia"Prostate cancer is a major cause of cancer-related deaths in men. Assessing knowledge, practices, and attitudes toward the disease is crucial for identifying areas where interventions can be implemented. This descriptive cross-sectional study, conducted at Kitwe Teaching Hospital in Zambia, aimed to evaluate knowledge, practices, and attitudes toward prostate cancer screening among male patients aged 40 and above. A total of 200 men participated in the study (100% response rate). Among them, 67 (33.5%) had heard of prostate cancer, and 58 (29%) were knowledgeable about the condition, with 37 (63.8%) demonstrating low levels of knowledge. Only 13% (26 participants) had been screened for prostate cancer in the last two years, but 98.5% of the respondents had a positive attitude toward screening.Binarylogistic regression showed that older age ($p = 0.017$), secondary or tertiary education ($p = 0.041$), higher knowledge ($p = 0.023$), and a family history of cancer ($p = 0.003$) were associated with increased prostate cancer screening practices. After multivariate analysis, those with higher

knowledge (p = 0.001) and a family history of cancer (p = 0.002) were more likely to undergo screening. The study highlights low knowledge and low screening rates despite a positive attitude toward screening. These findings underscore the need for enhanced public awareness campaigns on prostate cancer and its screening tests to promote early detection.

18**. Laurie M DeChello, David I Gregorio and Holly Samociuk.et.al.**"Race-specific geography of prostate cancer incidence"This study examined the geographic distribution of race-specific prostate cancer incidence in Connecticut and Massachusetts. Using census and cancer registry data, the cross-sectional analysis included 29,040 White men and 1,647 African American men diagnosed with prostate cancer from 1994 to 1998. A spatial scan statistic was employed to identify and assess the significance of geographic variations in incidence rates within the two states. Significant geographic variation in age-adjusted incidence rates was found for both White and African American men, with minimal overlap in their distributions. The identified locations mirrored patterns of residential segregation and socioeconomic conditions. Among Whites, areas with higher-than-expected incidence had higher socioeconomic status compared to areas with lower-than-expected incidence. No clear relationship between social indicators and incidence rates was found among African Americans. The differing geographic distribution by race does not suggest a common environmental cause. Further research into genetic, behavioral, and healthcare factors influencing the occurrence or reporting of prostate cancer is needed. The study emphasizes the importance of race- and location-specific interventions to better address the disease in at-risk communities, as well as continued analysis of the social and contextual factors contributing to disparities in cancer incidence between African Americans and Whites.

19. **Angela Maria Elizabeth PiccolottoNaccarato, Leonardo Oliveira Reis, Wagner Eduardo Matheus, Ubirajara Ferreira & Fernandes Denardi.et.al**. "Barriers to prostate cancer screening: psychological aspects and descriptive variables – is there a correlation"The study aimed to assess the psychological and demographic characteristics of men undergoing a digital rectal examination (DRE) during prostate cancer screening in an outpatient setting. A total of 345 men, who had their first DRE between February 2006 and December 2007, were evaluated for their emotional reactions and feelings after the exam. The average age of the participants was 52.8 years (ranging from 25 to 85 years). Of the respondents, 40.94% reported feeling fear (15.94% were afraid of the exam itself and 25% feared the diagnosis), 26.45% felt embarrassed, and 48.26% said they were not thinking about anything specific during the exam. There was no significant link between age, education level, and emotional responses. A majority of participants (96.8%) stated they would undergo DRE again, and

52.35% found the experience better than they had anticipated. Among these men, 41.81% had little or no formal education. Only 4.12% had a negative experience. Reasons for booking the appointment included personal choice (50.1%), physician recommendation (26.67%), family or friends (18.55%), and media influence (6.67%). Wives arranged 24.06% of the appointments. Although 85.47% of participants had prior knowledge about the exam, 80.81% reported gaining further understanding afterward. A lower level of education was associated with a lack of information about DRE, while 52.38% of those who decided on their own to get screened had prior knowledge of the exam's importance. Most patients found the DRE less uncomfortable than expected and would be willing to undergo it again. However, fear and embarrassment before the exam were common and can act as barriers to screening.

20**. Samuel W. D. Merriel, Garth Funston, Willie Hamilton.et.al.**"Prostate Cancer in Primary Care" Prostate cancer is a common cancer globally, and its incidence has increased in recent decades, largely due to the wider use of prostate-specific antigen (PSA) testing. However, mortality rates from prostate cancer have remained relatively stable during this time. A man's risk is influenced by factors such as age and family history. Men with prostate cancer often seek medical attention for symptoms in primary care, though some are diagnosed during opportunistic PSA screenings without showing symptoms. Symptoms traditionally linked to prostate cancer include lower urinary tract issues like nocturia, weak urine flow, erectile dysfunction, and visible blood in urine. However, these symptoms can overlap with benign prostate conditions like benign prostatic hyperplasia (BPH) and prostatitis, making it difficult to differentiate based on symptoms alone. The effectiveness of PSA testing in diagnosing prostate cancer in both symptomatic and asymptomatic men is debatable, as it can produce false positives and negatives, limiting its reliability as a standalone test. Healthcare providers must discuss the risks and benefits of PSA testing with patients to help guide their decisions. Digital rectal exams (DRE) performed by primary care providers may offer some ability to distinguish between benign and malignant prostate conditions. Patients referred for further diagnostic testing, such as a transrectal or transperineal biopsy, will have samples taken for histological examination. These biopsies are invasive and come with potential side effects, including infection risks. Alternative tests, like multiparametric magnetic resonance imaging (mpMRI), are being explored for their accuracy and safety in detecting clinically significant prostate cancer.

21. **Robin W M Vernooij, LyubovLytvyn, Hector Pardo-Hernandez, LoaiAlbarqouni, Carlos Canelo-Aybar, Karen Campbell, Thomas Agoritsas.et.al**. "Values and preferences of men for undergoing prostate-specific antigen screening for prostate cancer" To explore

men's values and preferences regarding prostate-specific antigen (PSA)-based screening for prostate cancer. Primary studies focusing on men's values and preferences concerning the benefits and risks of PSA screening. Two independent reviewers extracted the data and assessed the risk of bias using a modified risk of bias tool for values and preferences studies, the International Patient Decision Aid Standards instrument and the Cochrane Collaboration's risk of bias tool. A total of 4172 unique citations were identified, with 11 studies meeting the eligibility criteria. Five of these studies used a direct choice study design to examine PSA screening, while six employed decision aids showing patient-relevant outcomes. The methodologies of the direct choice studies differed, and outcome reporting varied greatly. Two studies suggested that men would be willing to forgo screening if it reduced the chance of unnecessary treatment or biopsies, even if the benefit to prostate cancer mortality was small. In contrast, one study found that men were willing to accept significant overdiagnosis to lower the risk of prostate cancer mortality. Among the six studies using decision aids, willingness to undergo screening ranged from 37% when a hypothetical reduction in mortality of 10 per 1000 men was presented, to 44% with a reduction of 7 per 1000. No studies specifically examined whether values and preferences differed among men with a family history of prostate cancer, men of African descent, or those from lower socioeconomic backgrounds. Men's values and preferences regarding PSA screening vary significantly, highlighting that the decision to undergo screening is highly sensitive to personal preferences. The review underscores the importance of shared decision-making for men considering prostate cancer screening.

22. **Mohammad H Abuadas, Wasileh Petro-Nustas, Zainab F. Albikawi.et.al.** "Predictors of Participation in Prostate Cancer Screening among Older Men in Jordan" Participation is a key factor influencing the long-term success of population-wide prostate cancer screening programs. This study aimed to identify strong factors associated with participation in prostate cancer screening among older Jordanian adults, using the Health Belief Model (HBM). Data were collected from Jordanian adults aged 40 and above who visited a Ministry of Health comprehensive care center. A pilot test was conducted to assess the internal consistency of theChampion Health Belief Model Scale for prostate cancer screening and the clarity of the survey questions. Sample characteristics and screening participation rates were analyzed using means and frequencies. Factors related to participation were examined through bivariate correlation and multivariate logistic regression. Approximately 13% of respondents had followed prostate cancer screening guidelines over the past decade. Four out of seven HBM factors (perceived susceptibility, benefits and barriers to PSA testing, and health

motivation) were statistically significant. Those who perceived higher susceptibility, saw greater benefits from PSA testing, had higher health motivation, and experienced fewer barriers were more likely to participate in screening. Additional predictors of screening participation included family history, presence of urinary symptoms, age, and knowledge about prostate cancer. Healthcare providers should emphasize the four modifiable HBM-related factors to increase participation in prostate cancer screening among older adults. Programs designed to reduce perceived barriers to PSA testing while enhancing perceptions of susceptibility, the benefits of testing, and health motivation should be developed and implemented.

23. **AbdulrahmanMusaadAlothman, Alhanouf Fahad Altamimi, Alanoud Waleed Alhenaki, Nouf Mohammed Almansour, Abdulrhman Khalid Alhusaini, Fahad Alateeq.et.al** "The knowledge and attitude towards prostate cancer and screening practices among males in Saudi Arabia" Early-stage prostate cancer can present without symptoms. Screening for prostate cancer typically involves the digital rectal exam (DRE) and the prostate-specific antigen (PSA) test. This study aimed to evaluate the knowledge and attitudes toward prostate cancer screening among males in Saudi Arabia. A cross-sectional study was conducted among Saudi males aged 40 and above, using a self-reported questionnaire distributed online. A total of 368 men completed the survey. Of the participants, 64.5% had heard about prostate cancer, primarily through social media (46.7%), the internet (40.1%), or healthcare providers (18.6%). Additionally, only 20.3% were aware of the PSA screening test. Moreover, 55.2% of participants had inadequate knowledge about prostate cancer and the PSA test, and 53.1% had a negative attitude toward screening. Knowledge and attitudes toward prostate cancer screening were generally poor among males in Saudi Arabia, which may be attributed to insufficient education on prostate cancer risks from healthcare providers.

24. **Obrey Alexis, Sarah Mansbridge and William Garbrah.et.al.** "Raising awareness of prostate cancer amongst black communities in the south of England" Black men are more likely to be diagnosed with prostate cancer than white men and may be diagnosed at a more advanced stage of the disease. This may be due to lower awareness of prostate cancer signs and symptoms, reluctance to report symptoms, lack of trust in the healthcare system, or a combination of these factors. The study aimed to increase prostate cancer awareness in black communities in southern England and to evaluate the effectiveness of engagement and awareness-raising campaigns. The project consisted of two phases. The first phase focused on raising awareness about prostate cancer among black men and their families through public-

facing activities, such as informational stands and talks, as well as online awareness activities. The second phase involved evaluating the awareness campaigns through interviews. A total of 320 black men and their families participated in the awareness sessions, and 12 black men were interviewed. The interview transcripts were analyzed using thematic analysis. Three key themes emerged from the data: increased knowledge and mindset shifts regarding prostate cancer, empowerment to take personal and community action, and strategies and tools to raise awareness about prostate cancer in black communities. The awareness campaigns were successful in raising awareness about the risk factors for prostate cancer among black men. Participants reported making lifestyle changes to reduce their risk of developing prostate cancer and showed improved knowledge and motivation to create positive changes in their own lives and in their communities.

25**.Christian Capanna, Ricardo Chujutalli, Shushawna Murray, KyawLwinb, Maung Aung, Pauline Jolly.et.al.**"This study was to implement and assess the effectiveness of a theory-based health education intervention aimed at increasing awareness of prostate cancer and encouraging screening among men in Western Jamaica, while also determining screening rates six months after the intervention. A total of 454 men attending various clinics and hospitals in Western Jamaica completed a pretest survey on general prostate cancer knowledge and screening intentions, which was administered through interviews. After the pretest, participants took part in a prostate cancer health education session and immediately completed a posttest survey. Statistically significant improvements in the percentage of correct responses between the pretest and posttest were observed ($p < 0.05$). Moreover, screening rates increased substantially, with over 33% of participants undergoing a prostate exam within six months of the intervention. The theory-based education program successfully enhanced participants' knowledge about prostate cancer, including types of screening tests, screening frequency, risk factors, and symptoms, and effectively boosted screening rates among men in Western Jamaica. This intervention model could be replicated to raise prostate cancer awareness and further increase screening rates in other regions of Jamaica and in developing countries.

26**. Maxwell OgochukwuAdibe, Deborah OyineAluh, AbdulmuminuIsah, Chibueze Anosike.et.al**. Prostate cancer is the leading cancer among men in Africa in terms of both occurrence and death rates, contributing to 40,000 cases (13% of male cancers) and 28,000 deaths (11.3% of male cancer-related deaths). In developed countries, the likelihood of being diagnosed with cancer is more than double that in developing nations, where many cancer cases are detected at an advanced, untreatable stage. This highlights the need for improved

education and detection programs. The study evaluated the knowledge, attitudes, and perceptions of prostate cancer among male staff at the University of Nigeria. It involved 655 participants who gave oral consent and completed a self-administered English-language questionnaire. The average knowledge score was 71.2%, with 57.8% of respondents having high awareness of prostate cancer. The average attitude score was 69.9%, and 60.8% of respondents had a positive attitude towards prostate cancer screening and treatment. However, the average perception score was 60.0%, and 53.9% of participants held negative views about prostate cancer screening and treatment. Despite the University staff's general knowledge and positive attitudes, a notable portion still showed poor understanding and negative perceptions of screening and treatment.

27. **David B. Miller &SarahC.Markt&Carvell T. Nguyen & Oita C. Coleman.et.al.;** This study seeks to explore whether younger men from different racial and ethnic backgrounds have discussed the benefits, risks, and harms of PSA screening with healthcare providers. Data was sourced from the Health Information National Trends Survey in March 2019. A cross-sectional analysis was conducted on 518 men aged 18 to 49 who completed the survey between October 2011 and February 2012 (HINTS cycle 4). Logistic regression was used to assess the relationship between race/ethnicity and discussions about PSA screening. Less than 10% of participants reported having had a PSA test, with Black and Hispanic men being more likely to have undergone testing compared to White men. However, Black men and men of other races reported fewer conversations with doctors recommending PSA screening (ORblack: 0.16, 95% CIblack: 0.07-0.38; ORother: 0.10, 95% CIother: 0.04-0.25), and greater uncertainty about whether PSA testing saves lives (ORblack: 0.49, 95% CIblack: 0.04-6.91; ORother: 0.17, 95% CIother: 0.06-0.48). Although minority men were more likely to have had a PSA test, they were less likely than White men to be informed about its potential harms and benefits. Increasing communication between healthcare providers and patients about the pros and cons of screening could improve awareness among younger men. In a post-COVID-19 environment, emphasizing the return to preventive screenings, particularly among vulnerable populations, is crucial. Research indicates that preventive screenings have declined across all groups due to the pandemic, with Black and other minority men being disproportionately affected.

28**. Motolani E. Ogunsanya, B.Pharm, MS, Carolyn M. Brown, PhD, Folakemi T. Odedina, PhD, Jamie C. Barner, PhD, Brittany Corbell1, and Taiwo B. Adedipe, MD.et.al.** This study aimed to explore the key behavioral beliefs of young Black men regarding prostate cancer screening and examine factors affecting their comfort with prostate

examinations. A total of 20 Black men, aged 18 to 40, participated in three focus group sessions held in Austin, Texas, from June to July 2013. The participants were asked open-ended questions to assess (a) the perceived pros and cons of screening to uncover key behavioral beliefs, and (b) factors that would influence their comfort or discomfort during prostate exams. The discussions were recorded, transcribed, and analyzed to identify recurring themes related to beliefs and comfort. Nine key behavioral beliefs about prostate cancer screening and eight factors affecting exam comfort were identified. Given the rising disparity in prostate cancer among Black men, understanding the beliefs of those in the prescreening age group (18-40 years) is important for shaping future interventions to improve screening rates when it is recommended at older ages.

29.**Ziyad F. Musalli ,Meshal M. Alobaid , Abdulrahman M. Aljahani , Meshari A. Alqahtani , Sultan S. Alshehri , Bader A. Altulaihi.et.al.** The study aimed to assess the knowledge, attitude, and practices regarding prostate cancer and its screening methods among patients at primary care centers in King Abdulaziz Medical City (KAMC), Riyadh, Saudi Arabi.A cross-sectional survey was conducted with a random sample of 385 men. A convenience sampling method was used to distribute a questionnaire containing 13 questions to evaluate knowledge, attitude, and screening practices for prostate cancer among adult male patients. The questionnaire included three knowledge-based questions, four questions analyzing attitudes, and six questions on screening practices, with certain questions dependent on earlier responses. Approximately 64% of participants had sufficient knowledge about prostate cancer, with those from higher socioeconomic backgrounds showing greater awareness. Over 70% of respondents believed prostate cancer screening is important. About 23% had undergone some form of screening, such as a prostate-specific antigen (PSA) test or a digital rectal exam (DRE), with most of them being men over 50.While most respondents had a good understanding of prostate cancer and a positive attitude toward screening, actual screening practices were significantly low. Further research is needed to explore the factors behind this gap.

30. **Michael J. Hall, MD, MPH; Karen Ruth, MS; and Veda N. Giri, MD.et.al;** Screening with fecal occult blood tests and lower endoscopy has reduced colorectal cancer (CRC) mortality, but gaps in compliance remain. A concern is the potential disparity in CRC screening uptake between White and African American men. This study aimed to evaluate disparities in CRC screening participation among men attending a high-risk prostate cancer clinic. If such disparities exist, they could inform further research into racial differences in awareness and preferences for CRC screening. Baseline data from a diverse group of men

aged 50 to 69, who were at increased risk for prostate cancer and enrolled in the Prostate Cancer Risk Assessment Program at Fox Chase Cancer Center, were analyzed. Factors influencing CRC screening uptake were evaluated using multivariate logistic regression. African American men had significantly lower rates of fecal occult blood testing (49.0% vs. 60.7%, P = .035), lower endoscopy (44.1% vs. 58.5%, P = .011), and overall CRC screening (66.2% vs. 76.3%, P = .053) compared to White men. Predictors of lower endoscopy uptake among African American men included older age (OR 3.61; 95% CI 1.87-6.97), family history of CRC (OR 3.47; 95% CI 1.30-9.25), and having insurance (OR 1.90; 95% CI 1.04-3.46).Despite their awareness of cancer risk and motivation to seek prostate cancer screening through a specialized program, gaps in CRC screening compliance were found among men, particularly African American men. Targeted messaging for younger African American men, both with and without a family history of CRC, is needed.

31. **Ruth GathoniMbugua ,SimonKaranja, and Sherry Oluchina.et.al.**Globally, the rising mortality from prostate cancer (PC) remains a significant challenge, with disparities observed, particularly affecting men in low- and middle-income countries. Prostate cancer is a leading cause of death among men in sub-Saharan Africa. In Kenya, although many men seek treatment for advanced prostate cancer, knowledge and screening for the disease are still low. This study aimed to evaluate the effectiveness of a community health worker-led education intervention in improving knowledge, perceptions, and screening for prostate cancer. The study was a quasi-experimental design conducted among Kenyan men aged 40-69. The intervention site was Gatundu North Sub-county, while Kiambu Sub-county in Kiambu County served as the control site. Stratified random sampling selected 288 participants for each study arm. Data was collected using a pretested, interviewer-administered questionnaire at baseline and six months after the intervention. Pearson's chi-square test was used for analysis. Awareness of prostate cancer significantly increased after the intervention ($P<0.05$). The proportion of participants with good knowledge of prostate cancer rose from 49% to 76.4% ($P<0.05$) in the intervention group. The perception of self-vulnerability to prostate cancer also increased from 26% to 42.1% ($P<0.05$). Additionally, the percentage of men who underwent prostate cancer screening increased from 4.5% to 20.4% ($P<0.05$) in the intervention group. Post-intervention, there was a statistically significant difference in screening rates between the intervention and control groups ($P<0.05$). Community health worker-led education during household visits effectively increased awareness, knowledge, perception, and uptake of prostate cancer screening. This strategy should be adopted to enhance prostate cancer screening rates.

32. **Mbah-Omeje K. N.; Iyke, C. A. and Amughe, S. C.et.al;** Prostate cancer is recognized as a leading cause of cancer-related deaths among men aged 40 and above, particularly in developing countries like Nigeria. By 2030, the global burden of prostate cancer, which is currently the fifth leading cause of death worldwide, is projected to reach 1.7 million new cases and 499,000 deaths. While the exact causes of prostate cancer are unknown, factors such as aging, family history, lifestyle, genetic changes, and race are believed to significantly contribute to the risk. Routine screening, including prostate-specific antigen testing and digital rectal exams, can help detect the disease early, improving incidence rates, lowering prevalence, and reducing mortality. Research indicates that Nigerian men are less likely to undergo screening due to fatalistic beliefs, lack of awareness about prostate cancer and its risk factors, misconceptions about screening, and insufficient encouragement from healthcare providers. This review suggests the need for institutional frameworks and policy guidelines to promote awareness campaigns on prostate cancer and the importance of early screening for men across Nigeria.

Chapter-4

MATERIALS AND METHODS

- **Study Design**: Cross section Study
- **Sample Size**: 370 Participant will be analyzed
- **Place Of Study**: Ghaziabad U.P
- **Inclusion criteria**: male participate age >30 years
- **Exclusion Criteria**: male participate age <30 years, unwilling to participate

METHODOLOGY

A create questionnaire-based study on the assessment of knowledge and awareness towards prostate cancer screening among urban and rural communities in Ghaziabad UP in two part –

1- Demographic information

2- Subjective questions

CHAPTER -05

RESULT

The result of this study engaged a total of 370 participants, with a fairly balanced distribution between rural and urban areas. Specifically, 51.6% (191 individuals) of the respondents lived in rural settings, while 48.4% (179 individuals) resided in urban environments. This distribution provided a comprehensive view of the varying perceptions and awareness regarding prostate cancer across different residential areas

Frequency Table

Residence (Rural/urban)					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Rural	191	51.6	51.6	51.6
	Urban	179	48.4	48.4	100.0
	Total	370	100.0	100.0	

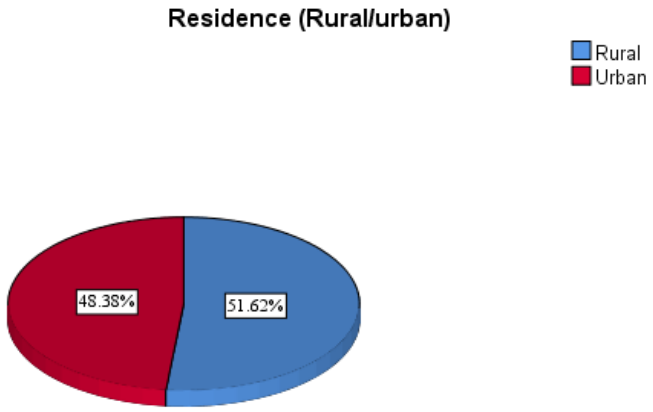

Table
and graph No.5.0: This table and graph shows that the study engaged a total of 370 participants, with a fairly balanced distribution between rural and urban areas. Specifically, 51.6% (191 individuals) of the respondents lived in rural settings, while 48.4% (179 individuals) resided in urban environments. This distribution provided a comprehensive view of the varying perceptions and awareness regarding prostate cancer across different residential areas.

1. Prostate cancer is curable?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MAYBE	34	9.2	9.2	9.2
	NO	88	23.8	23.8	33.0
	YES	248	67.0	67.0	100.0
	Total	370	100.0	100.0	

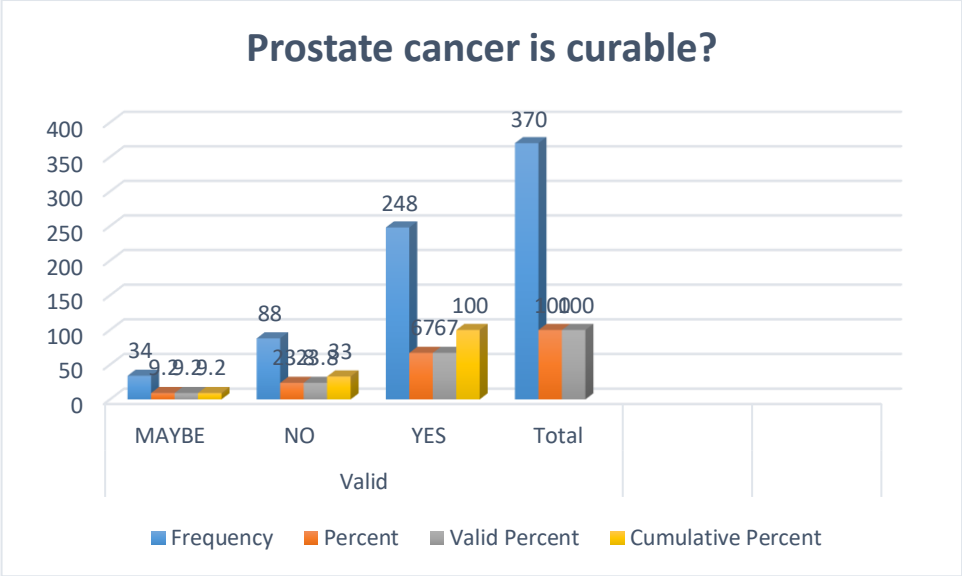

Table and graph No. 5.1: Thistable and graph shows that the data collected reveals diverse opinions and levels of understanding about prostate cancer among the participants. When asked whether prostate cancer is curable, a significant majority, 67.0% (248 individuals), affirmed their belief in its curability. In contrast, 23.8% (88 individuals) disagreed, while 9.2% (34 individuals) were uncertain. This indicates a general optimism about the effectiveness of treatment for prostate cancer.

2. Getting up often at night to pass urine may be a sign of prostate cancer?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MAYBE	32	8.6	8.6	8.6
	NO	172	46.5	46.5	55.1
	YES	166	44.9	44.9	100.0
	Total	370	100.0	100.0	

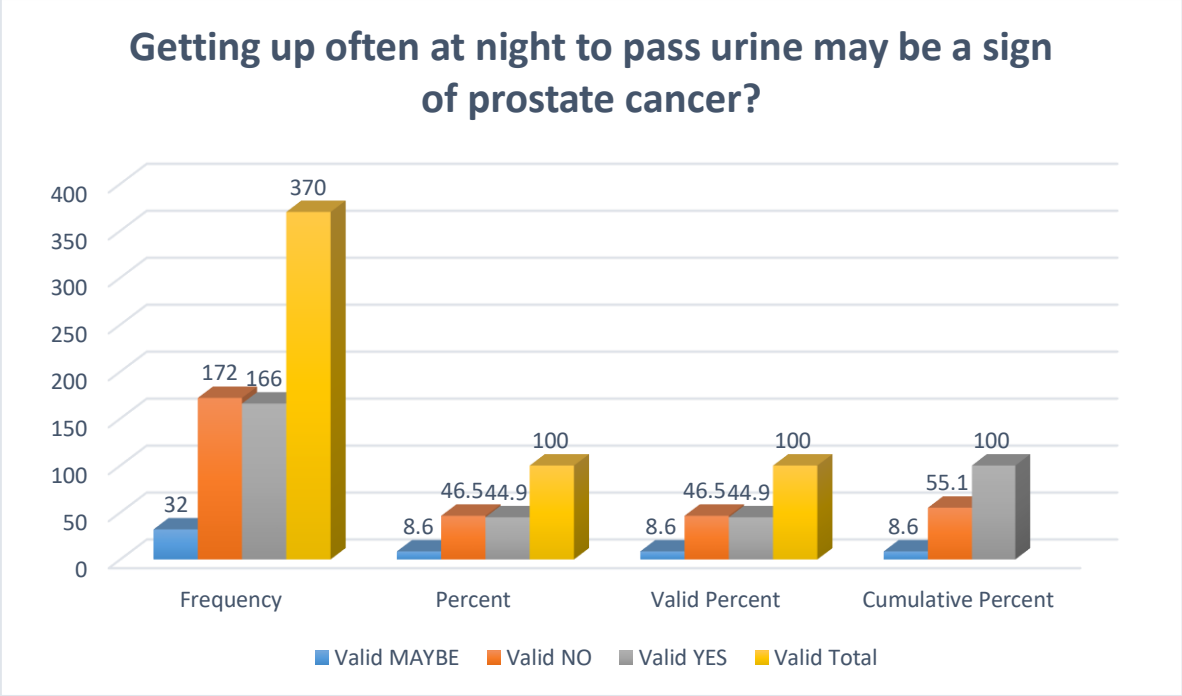

Table and graph 5.2: This table and graphs shows that the symptom of frequent night urination, which some may associate with prostate cancer, the responses were divided. 44.9% (166 individuals) of the participants considered frequent night urination as a potential sign of prostate cancer, whereas 46.5% (172 individuals) did not agree with this notion. An additional 8.6% (32 individuals) were unsure. This variability in responses highlights a lack of consensus on this symptom's significance.

3. Prostate is a cancer family disease?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MAYBE	50	13.5	13.5	13.5
	NO	177	47.8	47.8	61.4
	YES	143	38.6	38.6	100.0
	Total	370	100.0	100.0	

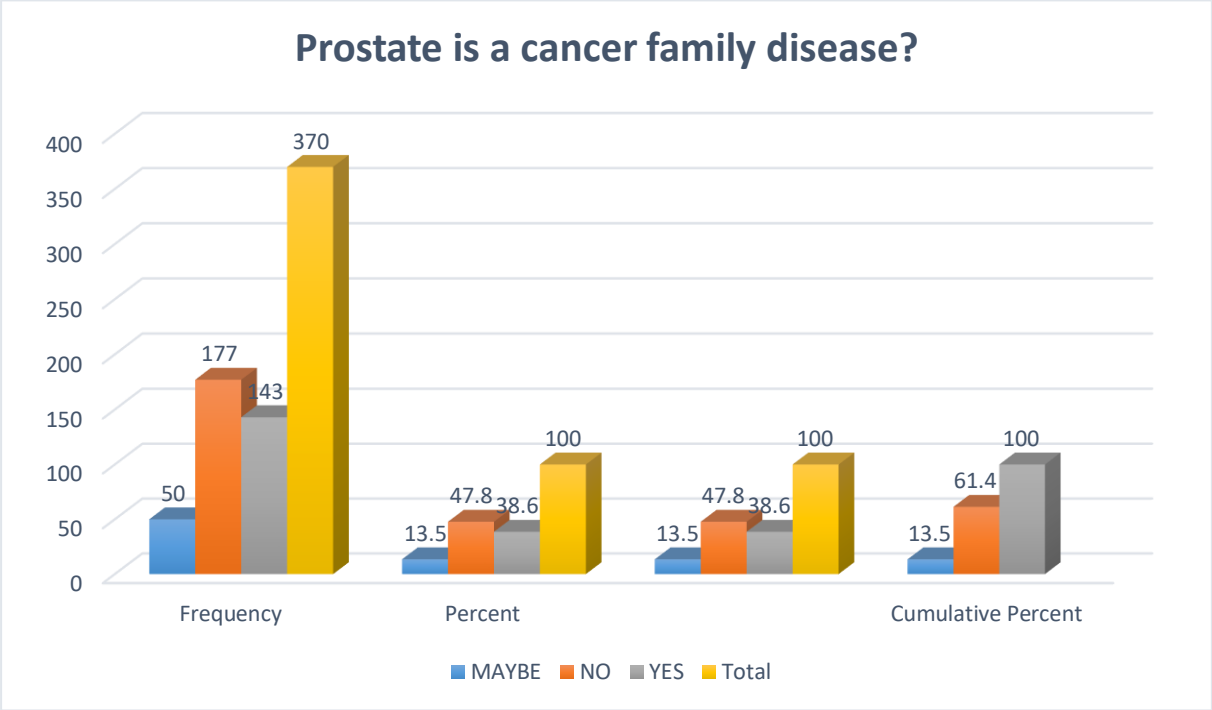

Table and graph. 5.3: This table and graphshow that the belief that prostate cancer could be a familial disease was also explored. Here, 38.6% (143 individuals) viewed prostate cancer as a condition that can run in families. However, a larger proportion, 47.8% (177 individuals), disagreed with this view, and 13.5% (50 individuals) were uncertain. This suggests a moderate awareness of hereditary factors in prostate cancer.

4. Any man can develop prostate cancer?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MAYBE	49	13.2	13.2	13.2
	NO	127	34.3	34.3	47.6
	YES	194	52.4	52.4	100.0
	Total	370	100.0	100.0	

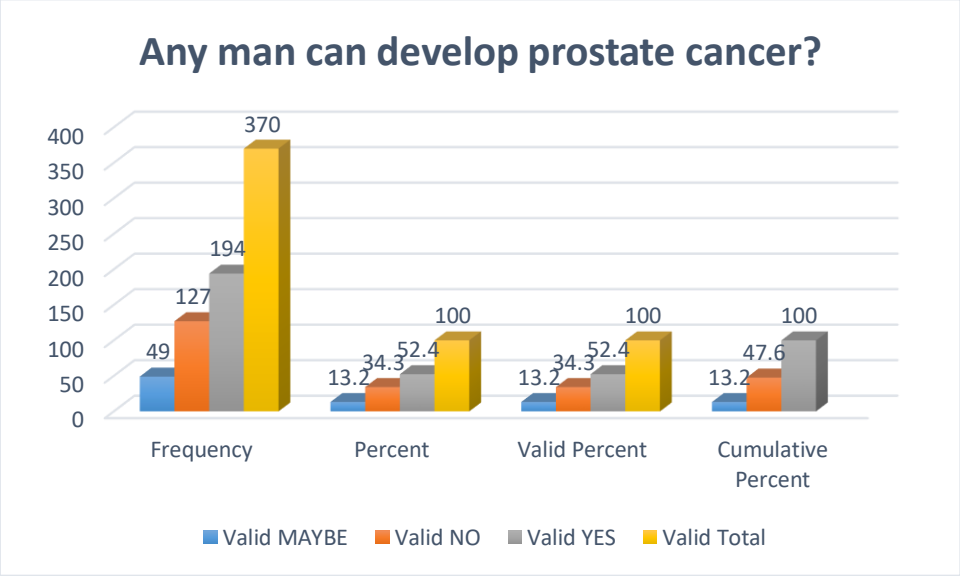

Table and graph. 5.4: This table and graph shows that the When it comes to the possibility of any man developing prostate cancer, more than half of the participants, 52.4% (194 individuals), agreed that it is possible for any man to develop the disease. On the other hand, 34.3% (127 individuals) did not believe this, while 13.2% (49 individuals) were unsure. This indicates a broad understanding of the disease's potential risk across the male population.

5. Prostate cancer is a spiritual disease?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MAYBE	61	16.5	16.5	16.5
	NO	145	39.2	39.2	55.7
	YES	164	44.3	44.3	100.0
	Total	370	100.0	100.0	

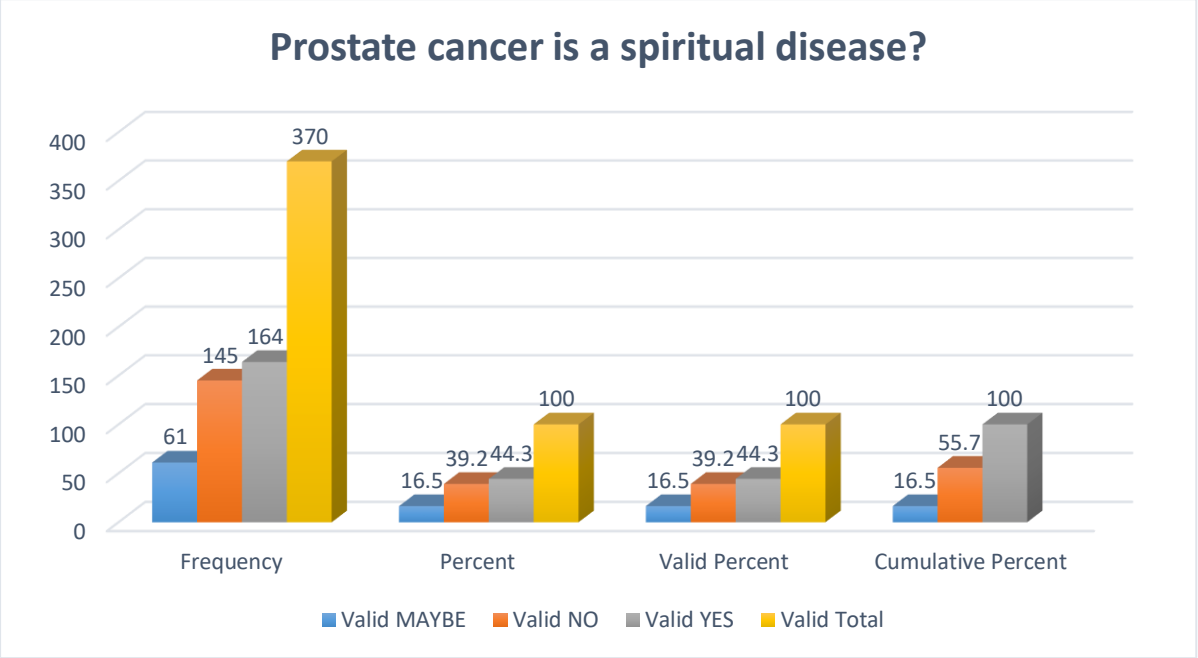

Table and graph: 5.5:This table and graph shows that the perception of prostate cancer as a spiritual disease received mixed responses. 44.3% (164 individuals) considered it a spiritual condition, whereas 39.2% (145 individuals) did not share this belief, and 16.5% (61 individuals) were uncertain. This reveals a notable divergence in how individuals conceptualize the nature of the disease.

6. Prostate cancer can be curved when diagnosed early?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MAYBE	33	8.9	8.9	8.9
	NO	121	32.7	32.7	41.6
	YES	216	58.4	58.4	100.0
	Total	370	100.0	100.0	

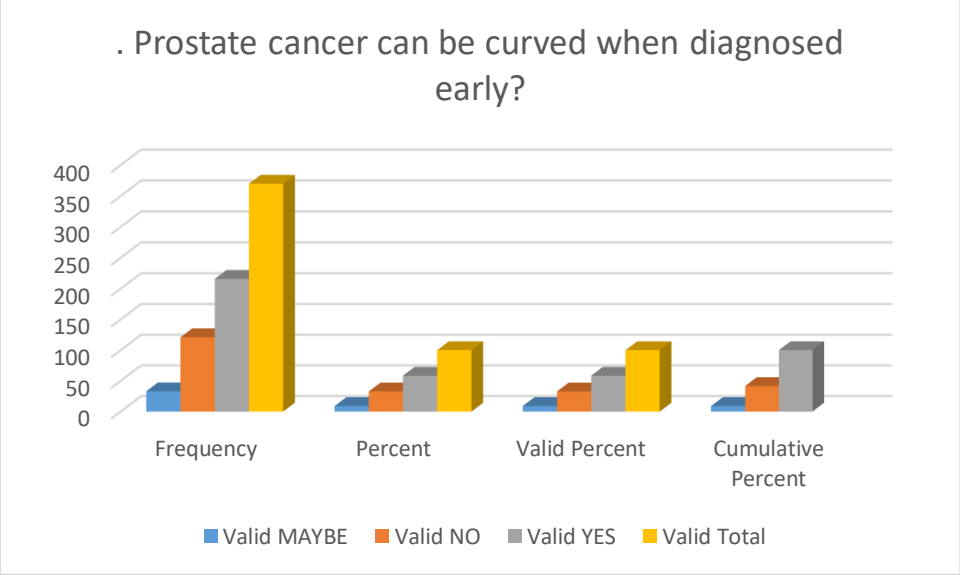

Table and graph No. 5.6: This table and graph shows that the data on whether prostate cancer can be cured when diagnosed early shows a positive outlook. 58.4% (216 individuals) believed that early diagnosis significantly improves the chances of curing prostate cancer. In contrast, 32.7% (121 individuals) did not agree, and 8.9% (33 individuals) were unsure, underscoring the importance of early detection.

7. Nothing can be done to save a person with prostate cancer?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MAY BE	74	20.0	20.0	20.0
	NO	168	45.4	45.4	65.4
	YES	128	34.6	34.6	100.0
	Total	370	100.0	100.0	

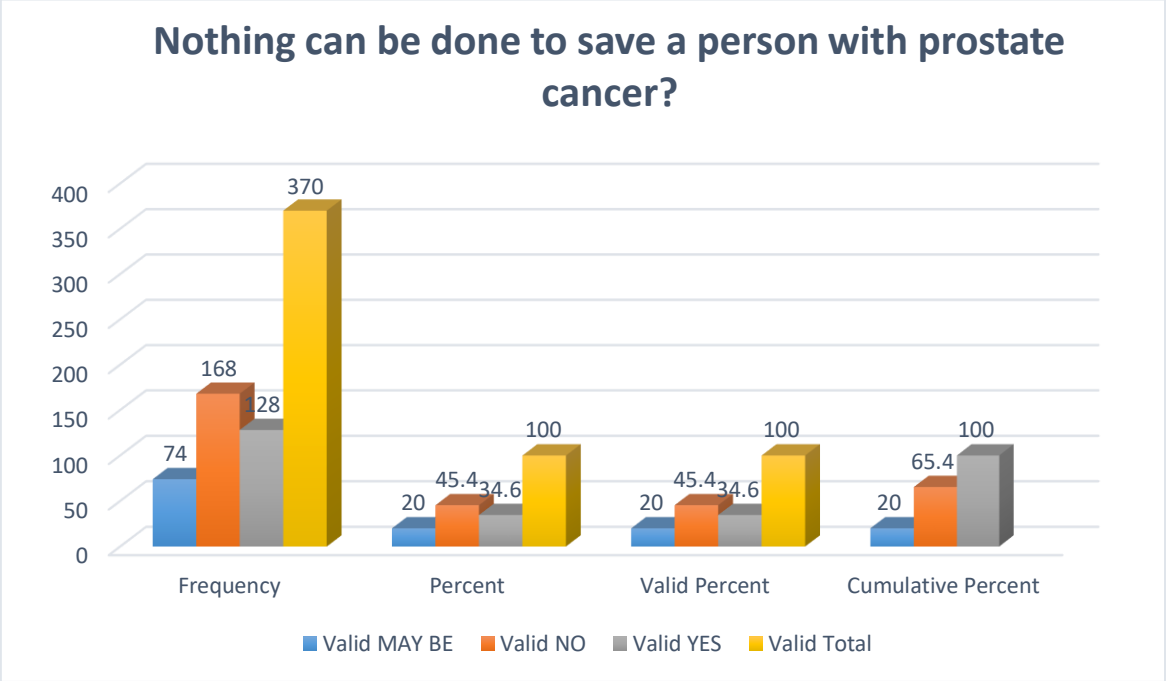

Table and graph No. 5.7:This table and graph shows that theContrastingly, when asked if nothing could be done to save a person with prostate cancer, 45.4% (168 individuals) disagreed, believing that interventions are possible. However, 34.6% (128 individuals) felt that there was nothing that could be done, and 20.0% (74 individuals) were uncertain. This highlights a need for further education about treatment possibilities.

8. Most prostate cancer spreads quickly to other parts of the body?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MAYBE	127	34.3	34.3	34.3
	NO	88	23.8	23.8	58.1
	YES	155	41.9	41.9	100.0
	Total	370	100.0	100.0	

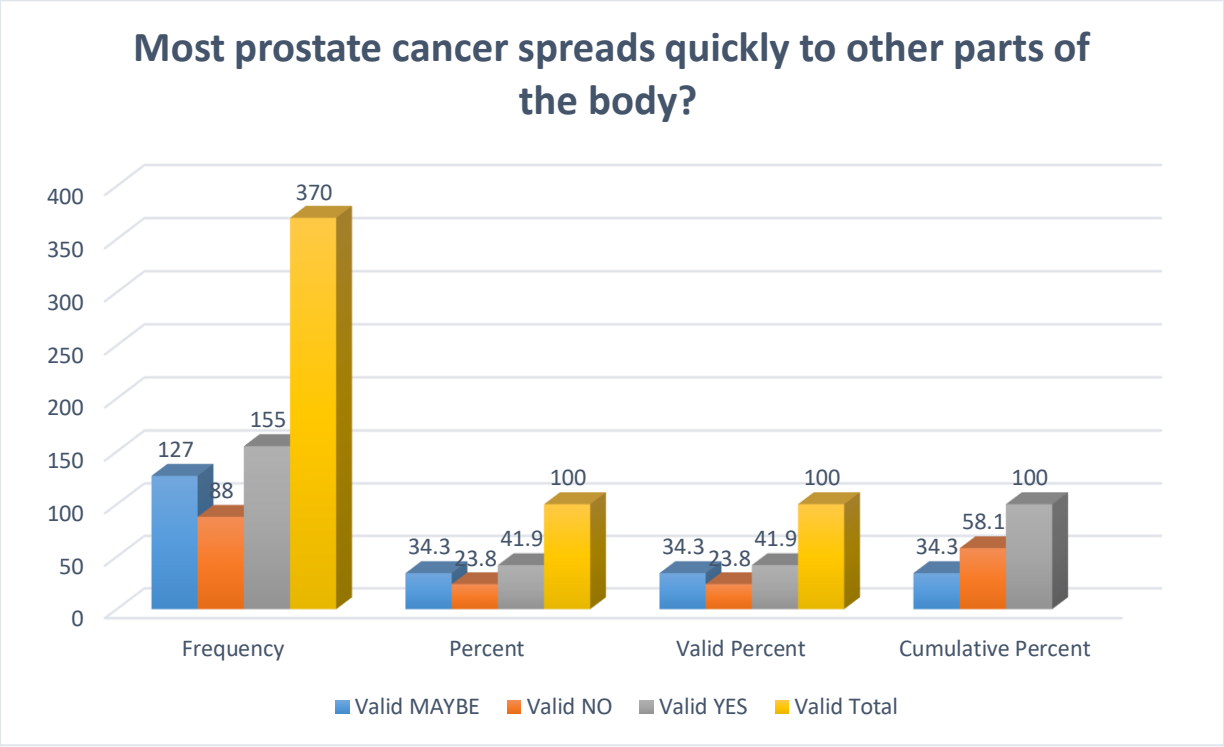

Table and graph No.:5.8: This table and graph shows that the issue of whether prostate cancer spreads quickly to other parts of the body, 41.9% (155 individuals) thought it does, while 23.8% (88 individuals) disagreed, and 34.3% (127 individuals) were unsure. This variability indicates differing levels of awareness about the disease's progression.

9. Other illness can make treating prostate cancer more difficult?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MAYBE	44	11.9	11.9	11.9
	NO	77	20.8	20.8	32.7
	YES	249	67.3	67.3	100.0
	Total	370	100.0	100.0	

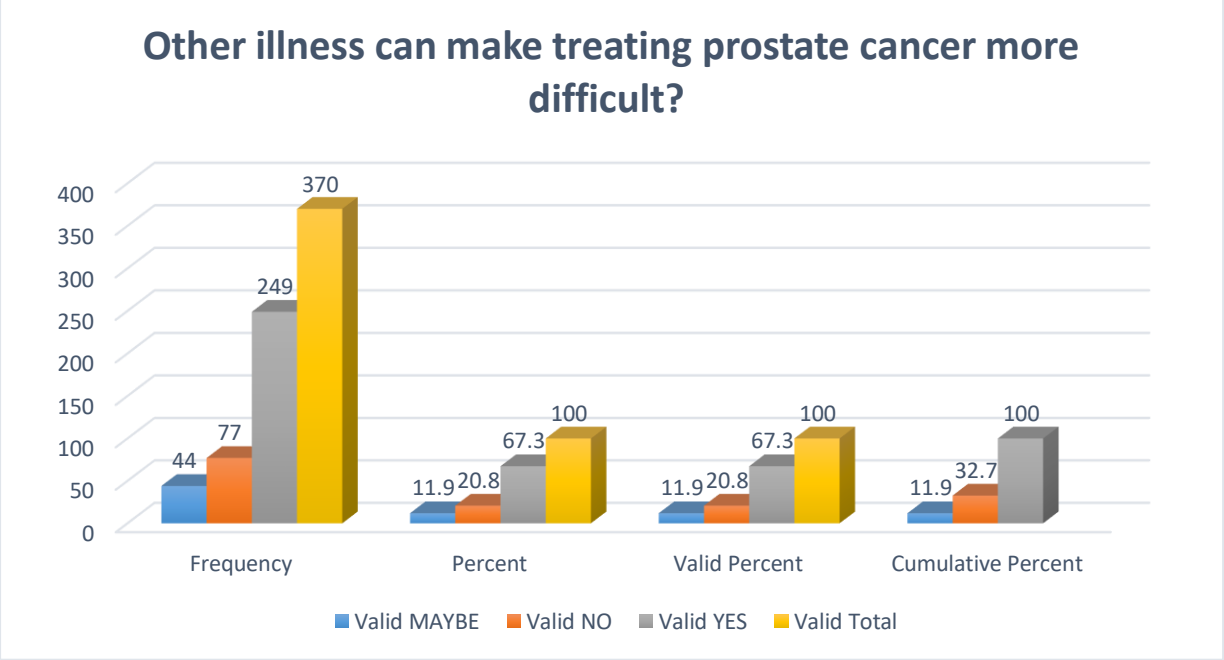

Table and graph No.5.9: This table and graph shows that the belief that other illnesses can complicate the treatment of prostate cancer was strongly supported, with 67.3% (249 individuals) agreeing. Conversely, 20.8% (77 individuals) did not believe this, and 11.9% (44 individuals) were unsure. This significant agreement underscores the complexity of treating prostate cancer in the presence of other health conditions.

10. Prostate cancer screening must be free for every man?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MAYBE	21	5.7	5.7	5.7
	NO	125	33.8	33.8	39.5
	YES	224	60.5	60.5	100.0
	Total	370	100.0	100.0	

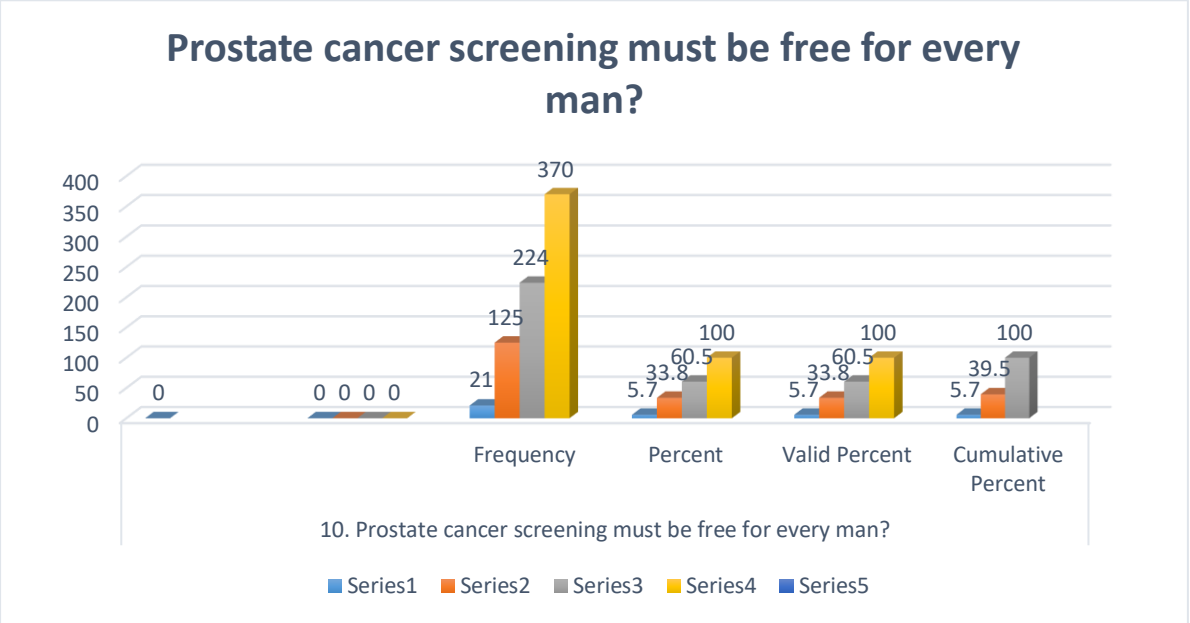

Table and graph No. 5.10: This table and graph shows that the Regarding the accessibility of prostate cancer screening, 60.5% (224 individuals) felt that it should be free for every man. In contrast, 33.8% (125 individuals) did not support this view, and 5.7% (21 individuals) were uncertain. This highlights a strong preference for equitable access to screening services.

11. Have you ever done any test for the screening or any regular checkup?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MAYBE	26	7.0	7.0	7.0
	NO	133	35.9	35.9	43.0
	YES	211	57.0	57.0	100.0
	Total	370	100.0	100.0	

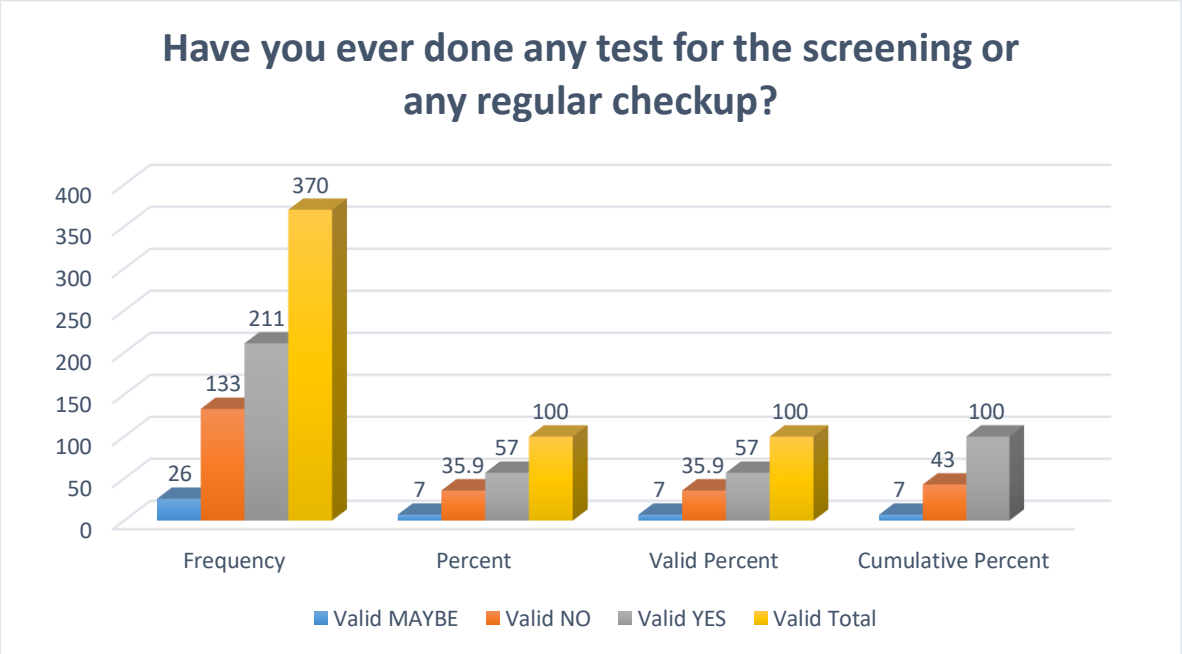

Table and graph No.5.11: This table and graph shows that the asked if they had undergone any tests for prostate cancer screening or regular checkups, 57.0% (211 individuals) reported having done so. In contrast, 35.9% (133 individuals) had not, and 7.0% (26 individuals) were unsure. This indicates a relatively high level of proactive health management among the respondents.

12. Do you feel anxiety or nervousness while taking about the situation?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MAYBE	66	17.8	17.8	17.8
	NO	93	25.1	25.1	43.0
	YES	211	57.0	57.0	100.0
	Total	370	100.0	100.0	

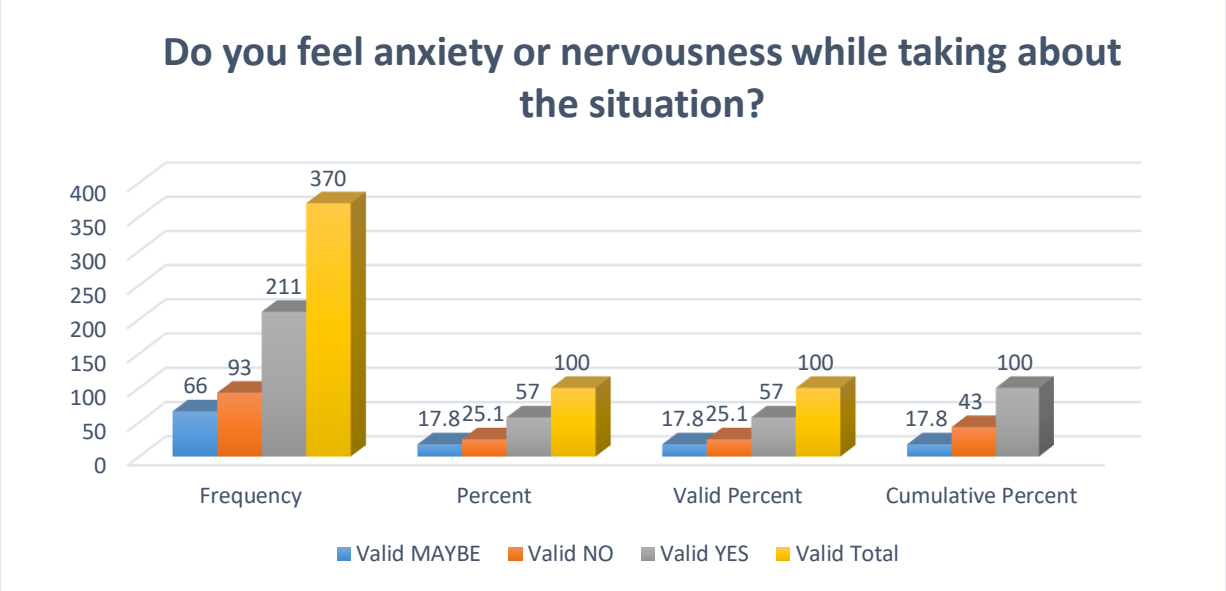

Table and graph No. 5.12: This table and graph shows that the Anxiety or nervousness about discussing prostate cancer was experienced by 57.0% (211 individuals). Meanwhile, 25.1% (93 individuals) did not feel anxious, and 17.8% (66 individuals) were uncertain. This significant level of anxiety suggests that prostate cancer remains a distressing topic for many.

13. Other illness or morbidity can cause the prostate cancer?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MAYBE	54	14.6	14.6	14.6
	NO	128	34.6	34.6	49.2
	YES	188	50.8	50.8	100.0
	Total	370	100.0	100.0	

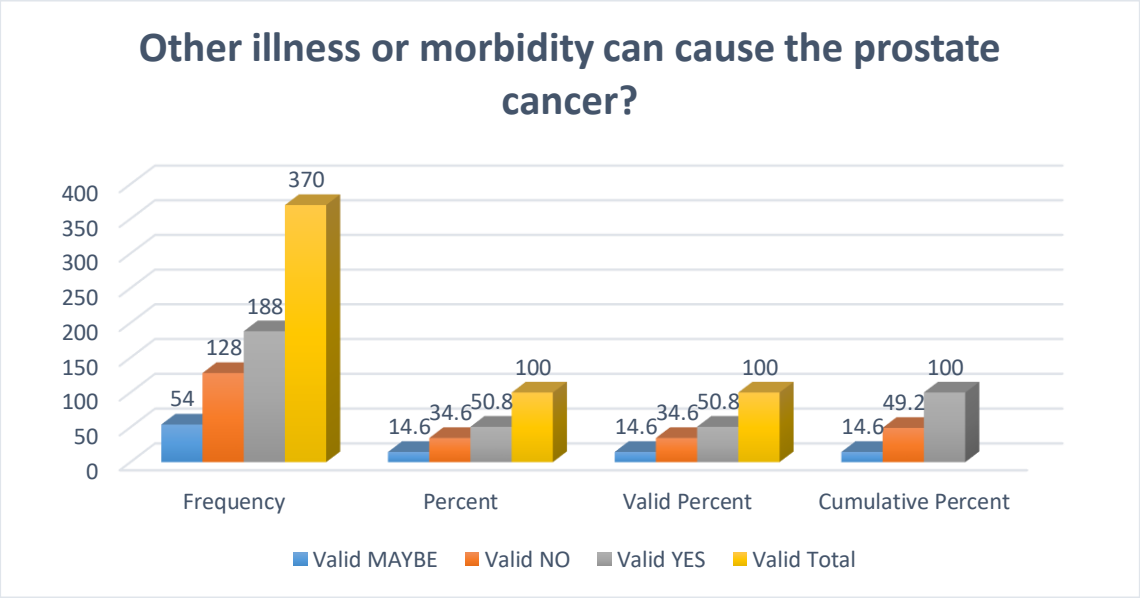

Table and graph No. 5.13: This table and graph shows that the question of whether other illnesses or morbidities can cause prostate cancer, 50.8% (188 individuals) agreed, while 34.6% (128 individuals) disagreed, and 14.6% (54 individuals) were unsure. This reflects a belief that underlying health conditions might contribute to the development of prostate cancer.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MAYBE	65	17.6	17.6	17.6
	NO	143	38.6	38.6	56.2
	YES	162	43.8	43.8	100.0
	Total	370	100.0	100.0	

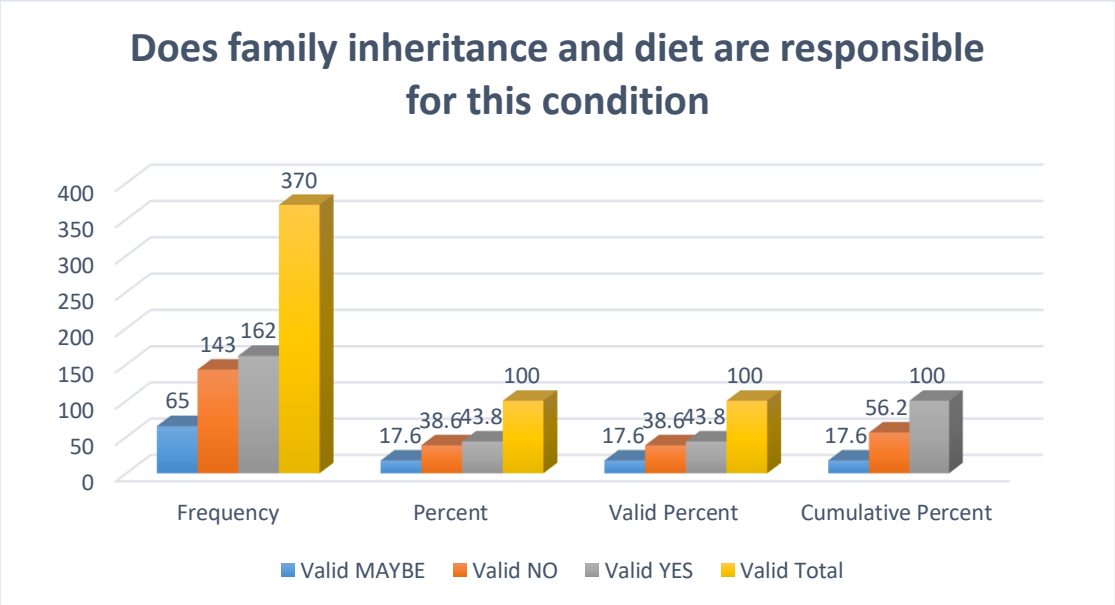

Table and graph No. 5.14: This table and graph shows that finally, opinions on whether family inheritance and diet are responsible for prostate cancer were mixed. 43.8% (162 individuals) believed they are contributing factors, whereas 38.6% (143 individuals) did not, and 17.6% (65 individuals) were unsure. This demonstrates a considerable portion of respondents linking lifestyle and genetic factors to prostate cancer.

15. Should be the ideal age 25-30 years for prostate cancer screening?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MAYBE	101	27.3	27.3	27.3
	NO	150	40.5	40.5	67.8
	YES	119	32.2	32.2	100.0
	Total	370	100.0	100.0	

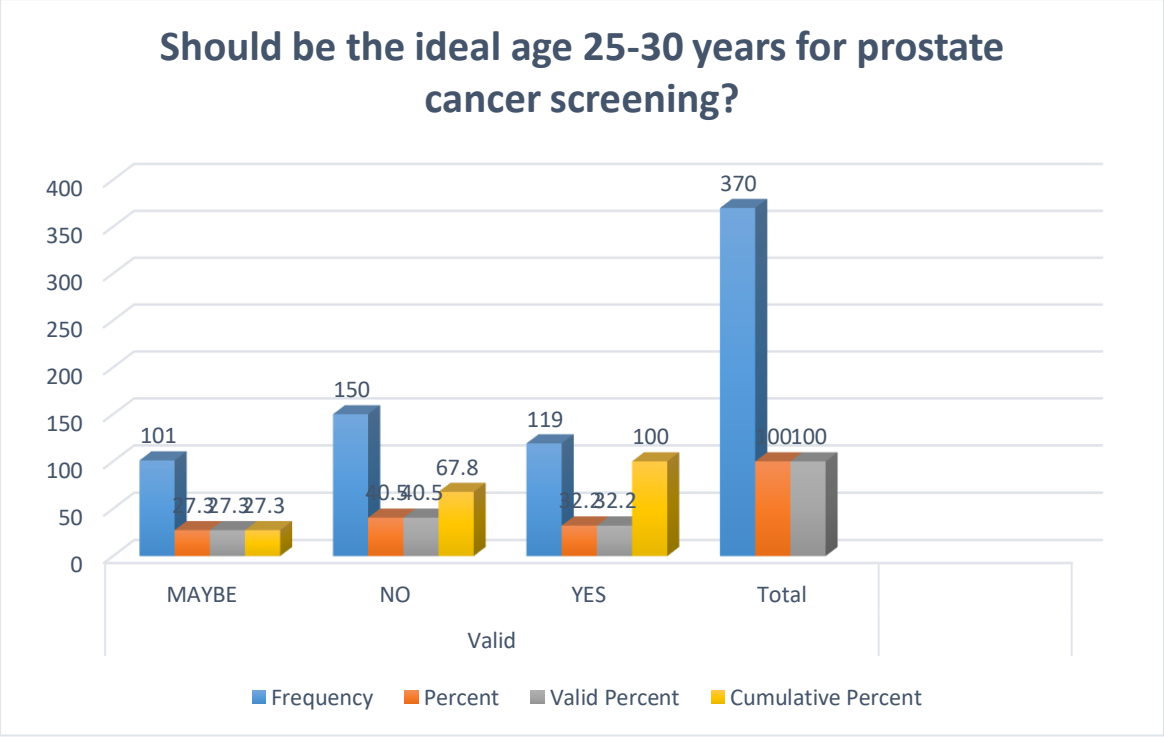

Table and graph No.5.15: This table and graph shows that the ideal age for prostate cancer screening, the views were also diverse. 32.2% (119 individuals) supported the age range of 25-30 years as ideal, while 40.5% (150 individuals) did not agree, and 27.3% (101 individuals) were uncertain. This highlights the ongoing debate about the optimal age for initiating screening.

DISCUSSION

The study included 370 participants, with a nearly even split between rural and urban populations. Specifically, 51.6% (191 individuals) lived in rural areas, while 48.4% (179 individuals) were from urban settings. This balance allowed for a thorough examination of differing perceptions and awareness of prostate cancer in various residential contexts. And the Previous studies have identified that recommendations from healthcare providers significantly influence the likelihood of individuals undergoing prostate cancer screening. In this study, only 3.8% of participants indicated that a healthcare provider was their source of information. Similar results were found by Ugochukwu et al. in their research conducted in LagosNigeria. Although most respondents were aware of PC, 57.3% demonstrated a low level of awareness about it overall.

A significant majority of respondents, 67.0% (248 individuals), believed that prostate cancer is curable, while 23.8% (88 individuals) disagreed and 9.2% (34 individuals) were uncertain. When asked about frequent night urination, which some associate with prostate cancer, opinions were split. 44.9% (166 individuals) thought it could be a symptom of the disease, while 46.5% (172 individuals) disagreed, and 8.6% (32 individuals) were unsure. The belief that prostate cancer could be hereditary was also examined, with 38.6% (143 individuals) agreeing that it could run in families. However, 47.8% (177 individuals) disagreed, and 13.5% (50 individuals) were uncertain, suggesting a moderate level of awareness about the genetic aspect of the disease. Regarding the perception of prostate cancer as a spiritual disease, 44.3% (164 individuals) believed it to be spiritual, 39.2% (145 individuals) disagreed, and 16.5% (61 individuals) were unsure, reflecting diverse views on the nature of the illness.

A previous study revealed that awareness of prostate cancer symptoms, treatment options, and screening was quite low, compounded by the presence of myths and misconceptions. Screening rates for prostate cancer were alarmingly low. It is crucial for the Ministry of Health, county governments, and other stakeholders to adopt a variety of strategies to raise public awareness about prostate cancer, promoting informed and collaborative decision-making. This study offers valuable insights for the development of effective prevention and control programs targeting prostate cancer.

CONCLUSION

This study, involving 370 participants from both rural and urban areas, highlighted significant gaps in awareness and understanding of prostate cancer. While a majority believed in the curability of the disease and supported early screening, misconceptions and uncertainty were prevalent regarding its symptoms, hereditary nature, and treatment possibilities. Anxiety about discussing prostate cancer was also common. These findings emphasize the urgent need for increased public education and awareness efforts, especially in rural communities, to promote informed decision-making and encourage early detection, ultimately guiding the design of effective prostate cancer prevention and control programs.

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LETTER OF ETHICAL CLEARANCE FOR DISSERTATION FROMREGISTRAR OFFICE

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F. No. SU/R/2024/1344[49] Dated: 17.05.2024

Subject: Grant of Ethical Clearance for **Dissertation Protocol** Topic **"Prostate Cancer Screening among Urban and Rural Communities",** submitted by **RAJA MAYUR KHAN,** student of M.Sc Medical Imaging Technology, 2022 Batch.

*****

With reference to the request for grant of Ethical Clearance for the Dissertation Protocol entitled **"Prostate Cancer Screening among Urban and Rural Communities", RAJA MAYUR KHAN** is informed that the **Dissertation Protocol** submitted by him/her was considered by the **Screening Committee** of the **Allied Health Sciences** in its meetings held on 07.02.2024 and 29.02.2024. The recommendations of the **Screening Committee** were considered in detail by the **Institutional Ethics Committee** in its meeting held on **15.05.2024** and the same was **approved** by the **Ethics Committee** of the **Santosh Deemed to be University, Ghaziabad, Delhi NCR**.

He /She is informed accordingly for further necessary action.

[Dr. EZHILRAJAN. K]
REGISTRAR

SANTOSH DEEMED TO BE UNIVERSITY * REGISTRAR * GHAZIABAD, NCR DELHI

RAJA MAYUR KHAN
M.Sc Medical Imaging Technology.

Copy to:

1. The Vice Chancellor
2. The Dean – Academics
3. The Dean, SMC&H
4. The Dean – Research
5. The Director - IQAC
6. HOD/ Course In-charge of the concerned Department.

CONSENT FORM

NAME OF RESEARCHER:RAJA MAYUR KHAN (MMIT, Post graduate student)

[E-mail;rajachoudhary7543@gmail.com][Contact: 8700046663]

I…… voluntarily agree to participate in this research study" **ASSESSMENT OF KNOWLEDGE & AWARENESS TOWARDS PROSTATE CANCER SCREENING AMONG URBAN AND RURAL COMMUNITIES IN GHAZIABAD U.P"**

- I understand that even if I agree to participate now, I can withdraw at any time or refuse to answer any question without any consequences of any kind.
- The purpose and nature of the study is explained to me and also had the opportunity to ask questions about the study.
- I understand that I will not receive any benefits for participating in this research.
- My identity will remain anonymous. This will be done by changing my name and disguising any details of my interview which may reveal my identity or the identity of people I speak about.
- In case of participant's inability to read: The researcher has done accurate reading of the consent form to the potential participant, and individual has had the opportunity to ask questions.

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Signature/Thumb print of research participant Date

Signature of researcher

Tasks	Tasks Duration	Start Date	End Date	Aug-Sep	Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep
Preparation of thesis proposal	21	15-07-23	05-08-23							
Presentation of thesis proposal	25	05-08-23	30-08-23							
Preparation & Submission Thesis Application in Ethics Committee	41	30-08-23	10-10-23							
Review of Literature	89	10-10-23	07-01-24							
Data Collection	80	17-02-24	24-05-24							
Data Analysis	7	24-06-24	31-06-24							
Finding & Recommendations	10	31-07-24	10-08-24							
Report Writing	39	02-08-24	09-09-24							
Submission of thesis	21	09-09-24	27-09-24							
Presentation of thesis	0									

ASSESSMENT OF KNOWLEDGE & AWARENESS TOWARDS PROSTATE CANCER SCREENING AMONG URBAN AND RURAL COMMUNITIES IN GHAZIABAD U.P

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